Commodore NETWORK

AUSTRALIA

Vol 5 No 1 January 1996

SUPPORTING THE 8 BIT RANGE OF COMMODORE COMPUTERS

NEWSWATCH

Change of Address

Commodore Network has changed its address during December!
Our new location is: Commodore Network, 20 Acacia St., Cobram, Vic. 3644
Phone (058) 711 707
Our E-mail addresses and fax number remain the same.

Talisman Update

Talisman has NOT closed down. It has moved.
No longer located in Upper Beaconsfield, Talisman is now based at Boronia, in Melbourne's Eastern suburbs. C128 files are available onboard, however last reports indicate that C64 users are not currently catered for. This situation may change soon.
Talisman BBS, Speeds to 28800, (03) 9761 1037

Super 64 CPU

Some news on CMD's latest undertaking, direct from Charles Christianson, vice president of CMD.
At the present time, we are wiring a preproduction prototype of the Super 64 CPU, an accelerator module for the C64/128, and are anticipating an initial production run for late February.
Developer response has been good and we hope to have development packages available in January.
CMD are already taking pre-production orders on the first production run. For more information on what promises to be an exciting product, read "Expanding Horizons" in this issue.

LoadStar Ownership

LoadStar, the world's premier disk-based Commodore specific publications (LoadStar 64 & LoadStar 128) is under new ownership. Fender Tucker and his wife, Judy Mangham have formed J & F Publications and taken over the two LoadStar publications and associated Commodore lines from Softdisk Publishing as from issue #137. They are dedicated to keeping LoadStar going into the next century. May I take the opportunity to wish both Fender and Judy all the best in their venture.

Threshold Games Package

Originally mooted as a package consisting of the two games, Gangster and Time Traveller, Threshold Productions have announced that the release version of the package will be shipped with two other games of similar game play.
The two new games are Ghost Town and Army Days. Both were made by the same team of guys, and both involve the same type of game play.
The product is now called the "Shoot Em Up Pack". The price will remain the same at US$14.95 within the U.S. Sorry, we can't quote an Australian dollar price as yet as pricing details have not been finalised.

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SUPPORTING THE 8 BIT RANGE OF COMMODORE COMPUTERS

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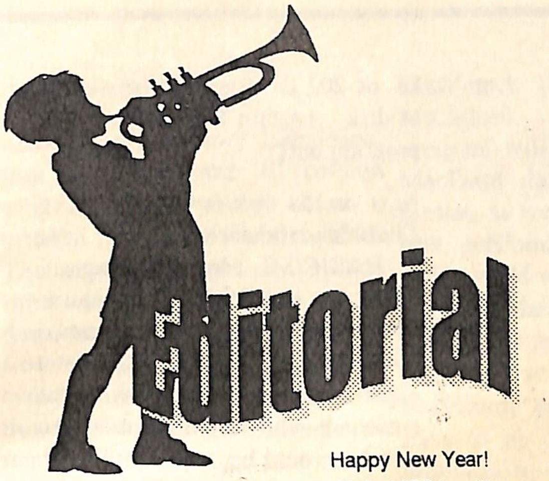

Happy New Year!

Well, 1996 is with us, and I thought that perhaps now would be a good time to reflect on the year past. So, to that effect, here's a synopsis of Commodore news during 1995 from a Commodore Network point of view!

JANUARY

January 1995 saw the first issue of Commodore Network to be printed in North America. In the "News Watch" article announcing this, we expressed a view that we hoped to be able to add Britain, and perhaps Germany to the list of nations including Australia, New Zealand, and the U.S., in which "Network" was published. Unfortunately, neither nation was added.

In a second "News Watch" article, the existence of a CD-ROM full of C64 software was announced. The CD was produced by 64er magazine in Germany.

FEBRUARY

February saw news of "Gazette's Last Gasp", when the Gazette disk officially announced its cessation of publication. Gazette had, for many years, been a stalwart supporter of the Commodore 8-bit machines, and it was a blow to many to hear of its demise.However, good news followed in that same issue with the announcement that a fax program was in development for use within GEOS. This has since become available and received rave reviews world-wide.

News Watch went on to announce that we had formed an association with a South Australian BBS. This linked our many S.A. readers with Commodore Network through Paul Gardner-Stephen's "Fishbowl" BBS.And lastly for February we announced that CMD would be distributing Skanntronic's Handyscanner and other products in North America.

MARCH

March '95, and the end is nigh for British magazine, Commodore Format. In a long, drawn-out death, the magazine was forecast to last until June or July at the latest, but lingered on until October '95.

In a second news article, it was announced that an Assembler had been written for the "Flash-8".It was also reported that former Handyscanner distributor, Rio Computers, was still in business, but had undergone changes in address and direction, now concentrating on the Amiga.

APRIL

April saw what was definitely the biggest story in Commodoredom for 1995, Commodore Business Machines liquidation, and its imminent demise!

Also making news was CMD's special offer on the resurrected HD-20 Hard Drive, and their release of a new cartridge port expansion module.

MAY

May, and we had trouble accessing our E-mail over a four week period, asking all and sundry to resend their messages.CMD terminated production of the FD-4000

And a persistent rumour sprung to the fore! Loadstar was to buy the Gazette disk. The opinion was expressed that, if anything, Loadstar would be seeking the subscriber list only!

JUNE

This issue we passed on information on the availability of 1581 disk drives and parts from Software Support International.The imminent appointment of a local CMD distributor was announced. We were unable to pass on names at this stage, but we were privy to the intentions of the prospective distributor, whom we were actively encouraging. Unfortunately, nothing seems to have eventuated as yet!

We announced the first (and so far only!) "Update" column covering all that was new in Commodore 8-bit specific hardware and software. A second "Update"column is currently being put together, and should be available for the February edition.

JULY

German PC distribution giant, ESCOM, becomes the new owner of Commodore, and announce that the C64 will be put back in to production for the East European market.More information was supplied on the Gazette saga, including the rumour that dieHard was to take over subscriptions. This was considered unlikely at the time as dieHard had not published for several months previously. Events have since confirmed that dieHard was in no position to implement such a deal, with their recent official announcement that they will no longer publish.

Loadstar announced the release of several "Compleat" series. These included "The Compleat Walt" (graphics), "The Compleat Dave" (music), "The Compleat Roger" (quizzes), "The Compleat Maurice" (card games), and "The Compleat Programmer" .An announcement was made on the formation of a new User's Group in the Grafton region.

AUGUST

dieHard makes the headlines,announcing their intention to republish, aiming for an August or September 1995 edition. Hindsight goes to show us that they never made it!

64Net is in the news with Paul Gardner-Steven's announcement that version 2 is in the pipeline.And the exploits of one Maurice Randall, GeoProgrammer extraordinaire, again make "News Watch", with the announcement of his work on a CD driver for GEOS.

SEPTEMBER/OCTOBER

A combined issue for reasons of expediency, News watch in this issue included:GeoFax ships out! The long awaited fax program for GEOS users is now available.

One of the biggest demo parties to be seen in Australia for years is announced. Unfortunately, due to the delays experienced in producing this issue, the announcement in News watch was too late to be of much good!

NOVEMBER

CMD's new C64 accelerator is announced (see inside this issue for more information).Three new commodore 8-bit publications are announced - "GEOS Publication", "The Gatekeeper", and "Commodore Gazette" (no association with the old "Gazette").

DECEMBER

Marc Walters reports on the demise of Commodore Format (finally!), a GeoCable printer driver routine is announced for the Fun Graphics Machine, and Performance Peripherals announce a special offer on their RAMDrive.

1995 sure was a year full of surprises! Despite the "downers", Commodore programmers and users keep on rolling with the punches, and keep on coming back, time after time, with new software and hardware. Who, just twelve months ago, would have predicted a fax program on the 64, or that new user-generated publications would continue to arise from the ashes of the failed commercial magazines. I must admit that the ingenuity and tenacity of Commodore users continues to surprise me, and perhaps that's why I am so proud to be numbered amongst them!

Warren

Jane Voskamp-Jones

Since my October '95 column got moved along to November '95, and thus my November '95 column got moved along to December '95, and they were both already out of my hands {drat it Warren, it's all mixed up now !}, I was unable to wish you all a very happy XMas like I had intended. So instead, I shall take this opportunity to wish you all a pleasant summer break {lucky you}, and a Happy New Year!!

This month, we continue the Review of Storm Systems Disk 1 by Joseph P. Buckley, aka Red Storm, and distributed by Michael Renz of Performance Peripherals Europe, in Germany.

Now on Side 2, we will take a brief look at Joe's specialized REU related programs, and his Public Domain offerings that are also on this disk. The addition of these programs is a bonus on this disk, and they do not detract at all from it's value for money price.

So to continue from the December column ....First up is actually a BASIC program, ANY BOOT {and it's particular variations of ANY BOOT 128, and ANY BOOT 128 II}. ANY BOOT requires the user to have an REU on their system set-up. ANY BOOT is a BASIC/ML hybrid program which will allow the user to 'boot' GEOS from any disk drive type. The program actually Reboots GEOS from the REU, taking advantage of the RAM Reboot option in Configure.

I didn't try this program, {when I need to give GEOS a swift kick, I hit the reset button, and it revives itself from the REU}, but someone will surely need it.

The next program, B1 MAKER {and it's particular variations}, is also aimed at the REU user, and is again a BASIC/ML hybrid program. B1 MAKER will copy the GEOS kernal and associated data from bank 0 of the REU to a single large data file on the device from which it was loaded. However, before using the program, you must set up your GEOS system as you wish to have it 'boot' from disk. Re-organize your drives first from Configure, and also make sure that the RAM Reboot option is active. After running this program, a 133 BL or 202 BL files will be written to disk. {Again I did not try this program out}.

Next on the disk is Q.B.B. BOOT {and it's particular variations}, it is a BASIC/ML hybrid program again, but it is for REU and Quick Brown Box users. The two must be connected via a cartridge port expander board. Is there any reader out there who might want to use this ?, I would be surprised if there was someone anywhere in Australia who would !

I have never seen a QBB to be totally blunt, but we are prepared for anything now. The programmers intentions are that you can then 'boot' GEOS from a 64K Quick Brown Box.

Next is AUTOBOOT {and it's particular variations, run only under v2}, and it is also a small BASIC/ML hybrid program aimed at the REU user. AUTOBOOT allows up to eight Auto-Exec files to run from the boot disk, before deskTop is called. The procedure is much the same as for ANY BOOT, the difference being the Auto-Exec business. At least you now have a zillion options.

Down to the last of these types of programs, AUTO QBB {and it's particular variations, run only under v2}, and it is again a small BASIC/ML hybrid program aimed at REU and QBB users. AUTO QBB's significance is that it allows up to eight Auto-Exec files to run from the boot disk, before calling deskTop. Aarrgghh, I am glad that is the last of these particular files. I can't test any of them, let alone really understand what they are on about, oh well, never mind me.

Now back to familiar territory. Joe's PD programs on this disk, are a collection of perhaps his most useful GEOS utilities released into the Public Domain.

Looking at Directory Label first, this straightforward 40 column program allows you to obtain a printout of a GEOS disks contents. The program names are printed three across, and then work downwards. The type is nice and from the size of the printout you could easily, and carefully, paste this to your disk jacket for future ready-reference to the disks contents. The disk name, the blocks free, and the date of printing, are typed above a line prior to the disk contents. I quite like this simple offering, and I think many of you could easily find this program super convenient in your collection.

Font Dump III is next. Many of you may already be using this one. This simple 40/80 column program allows you to generate sample sheets for all your GEOS fonts. When you have collected over two hundred fonts, a hard copy printout is worth it's weight in gold when you're searching through your disks for just 'the right font'. The program prints out the font name, point size, and font ID first in BSW 9 font, and then in the font being sampled, followed by the entire font starting from ASCII 32 to ASCII 126 {remember your C64 or C128 manual?}.

PaintView 1.2 is a classic 40 column program to let you scroll through a geoPaint document without using geoPaint. When you double-click on PaintView 1.2 you are presented with a DBGetFiles box which lists all geoPaint files on your current disk. Gadgets for your selection are OPEN, DISK, DRIVE, and of course, CANCEL. If you haven't come across this program yet, where have you been ? Later commercial releases were PaintView 2 and PaintView III. The programs simplicity speaks for itself.

MacAttack II+ : The Wrath of Macintosh. This 40/80 column program will allow conversion of MacPaint data files to geoPaint format, as well as going the other way, geoPaint to MacPaint format {who would want to do that though ?} Select the conversion type from the Convert menu and follow all the prompts in the DBGetFiles box.Handy Import. This would have to be one of the over-used programs in my collection, since I actually own and use a HandyScanner64 with PageFox to scan in 'Handy' pictures. Handy Import is a 40/80 column program and when double-clicked on, presents a main menu of File and Convert. When you select Convert, a DBGetFiles box is displayed listing all the handy format pictures found on the current disk. The usual gadgets for your selection are OPEN, DISK, DRIVE, and of course, CANCEL. Select the file{s} you want to convert and click on OPEN, and the next DBGF box requests the destination disk confirmation. Click on OK, DRIVE, or CANCEL. A small DBox displays The original filename and the destination filename, until the conversion is complete. The program takes care of everything. The only thing left for you to do is view the geoPaint pictures when done. For more information on the HandyScanner64 and PageFox refer to their section in 'GEOS in Review' {**}.

Flag Setter is a small 40/80 column program written to allow the user to change the mode flag on GEOS programs. The mode flag is used by GEOS to determine which mode, or maybe both are possible, that a program is to be run under. On double-clicking on Flag Setter, you are presented with the usual DBGetFiles box. Again the gadgets for your selection are OPEN, DISK, DRIVE, and of course, CANCEL. Select the file, and click on OPEN and a display box showing the four possible modes is shown. To change a mode, just click in the required box. When you select OKAY, the alteration is written to disk and the first DBGF box is again presented. You should be very careful when using this program, as you could totally mess up an otherwise good GEOS program. Of course, you might only be wanting to LOOK at the modes, and not do anything. For more information on the mode flag, refer to the 'Examining GEOS Sectors' in 'The HandBook of Commodore Disks'.

Mirror, Mirror is next on the list. This is one of the most useful geoPaint document utilities that you could ever have in your collection. Mirror Mirror is a 40/80 column program and when double-clicked on, presents a main menu of File and Convert. When you select Convert, a DBGetFiles box is displayed listing all the geoPaint pictures found on the current disk. The usual gadgets for your selection are OPEN, DISK, DRIVE, and of course, CANCEL. Select the file and click on OPEN, and the next DBGF box requests the destination disk confirmation. Click on OK, DRIVE, or CANCEL. A small DBox displays Working on record ... until the mirroring on the X-axis is complete. Then quit the program, and go view your mirrored picture. It couldn't be more simple than that.

HulmeView 1.1 is next. This 40 column program is for reading CBM SEQ files while you are in GEOS. This program when double-clicked on, presents a main menu of File and Read Sequential. When you select Read Seq, select from Get File or Style options menu. Selecting Style gives a sub-menu with the options of plain or bold type, with plain the default. On selecting Get File, a DBGetFiles box is displayed listing all the non-GEOS Seq files found on the current disk. The usual gadgets for your selection are OPEN, DISK, DRIVE, and of course, CANCEL. Select the file and click on OPEN, and the next box that is drawn in which the text will be shown, with the filename displayed in the header. To continue reading, click at the prompt, to exit, click the close box in the top right corner. It couldn't be more simple than that.

Well along with three custom fonts, that's the whole package, and as you can see, one you should not be without !!. All of these extremely useful programs are available on the Storm Systems Disk 1, distributed by Michael Renz {Performance Peripherals Europe} Holzweg 12 53332 Bornheim GERMANY, for DM29 + S&H DM15 {Airmail}. Enquire further for price and shipping details. [Allow for conversion rates and bank charges]. Depending on the exchange rate you are looking at around A$45 to A$50 -ish.

READERS THREE WISHES AND ALL THAT ...

From Val Malcolm of Blackwood VIC, "Sorry about not writing to you before to thank you very much for the phone call you made to me re inquiry on how to get my [printer] set-up working with geoPaint etc. It was quite a thrill to me to think someone cared enough to help.

Since then, I have had keyboards blow out, seems that the power supply was cracked and was boosting the keyboard power, all fixed now so I can get on with learning GEOS, which I am finding very interesting. [I] have printed out a flyer for the bowling club, I am proud of my first effort so it's only forward from now on. I enjoy a challenge, just a little slower these days on the uptake. It certainly keeps me occupied".

Gg. *You're welcome Val. I knew that you had all the pieces you needed to sort out your puzzle with printing, so really, you only needed pointing in the right direction, and I am only to happy to do that when it's needed.*

I am glad that you managed to get your power supply fixed. I can't stand it when my equipment sputters to a halt. To me, it's like losing an arm when something goes 'down', as I depend on all the computers so much. All the best with your future GEOS efforts.

From Dave Saville of Lansdowne NSW, "I've read, and very much enjoyed, your 'GEOSgenie' column in CN over the past twelve months or so, and I hope that your expertise might cover my little problem.

Let me start from the beginning. {Are your sitting comfortably ?. This might take a while}. I use two C128's, one with JiffyDOS installed and the other with {C64 mode only} DolphinDOS installed. Usually, I use the computer with DolphinDOS installed because I have a 4 meg RAMLink attached, with a 1750 REU attached to that. {I'm not skiting here : I thought that you might need all the details}. From this, I use GEOS128 for just about everything and, as virtually everything comes from the RAMLink, it's really fast.OK. {With me so far ?. You might have to explain all this to me, shortly}. Now, just recently I've been having trouble with the power switch on the DolphinDOS computer so I changed to the one with JiffyDOS installed. Unfortunately, I didn't bear in mind that the RAMLink also includes a JiffyDOS kernal and was using the system with both JiffyDOS chips active. All was working pretty much as normal, apart from a few minor glitches that tend to crop up in GEOS anyway, but as I tried to access deskTop from DualTop v2., the system crashed. This was when I discovered that some of the files in my main GEOS partition on RAMLink had been corrupted: they don't even appear in geoWrite or geoPaint directories and their icons are scrambled.

This is where I'm hoping that you can help me. Would you take a look at the disk that I sent down and see if you can recover any, or all, of the paint files on the disk ?. Any corrupted programs are easily replaced so don't worry about those. The main ones I'm interested in are the 'Panache' {French for mixture, in case you're wondering} and, especially, the 'Video Labels' files. these took a bloody long time to do, so it would save me a lot of time if you could recover them, even partially. {I'm quaking in terror that you don't have access to a 3 1/2" drive, but I won't even think about that}.

Now I know what you're thinking : why didn't this idiot back up his files. He actually did back them up after every use, but in the panic to recover lost files, he copied all the corrupted files on to the backup disk, replacing all the good copies. {DualTop's block copy makes it very easy to do this. All right, OK. It's a poor excuse, but '.. my dog ate it' has been done to death and besides that, he never actually did eat a disk : he used to drag them off the table and scratch the covers off with his claws though}. The disk that I sent is actually a copy of a copy of the main RAMdisk : I copied the original RAMdisk into a spare partition in RAM, then copied that on to this disk.So, my dearest

Jane, angel of mercy, knower of GEOS, thing of beauty so boundless ..... [*ummm ... stop, I'll look into it already, Gg blushing*]. After all that, whatever you can do I will be very grateful for.

In closing, thank you for reading this waffle. I know through the magazine that you haven't been well and I hope that all is getting better. You write a terrific column and the magazine will be very humdrum if you ever decide to stop {*no offense to Warren*}. Thanks again for considering my problem, even if you can't help. Hey, I got to write to someone who uses a Commodore computer, that I don't know before, so just that is enough. Keep well, JVJ".

Gg. *[Still blushing] ... Thanks, and you're welcome Dave. I thought I would get right to the point Dave, most of the files are totally un-recoverable despite my valiant efforts. Now to start at the beginning. I do have a 3 1/2" 1581 drive, had it since Aug92 actually. I enjoyed your letter thoroughly, and I laughed most of the way through, not because of your loss, but with your manner of writing, of course. Thanks for your comments about the GEOSgenie column in CN. At times I need good feedback just to keep me wanting to write it, and your letter certainly does that.*

From the look of your 'work' disk, GEOS really got you bad with that one. The first thing I did was print out the GEOS directory so that I could see how GEOS was 'seeing' the files, since you pointed out that Paint and Write would not list them in their DBGetFiles DBox. Unfortunately it was not simply a matter of restoring the icons, or the parent application information, or filetype. I did replace these things on the paint and write files that you said mattered, but most of them were beyond that already. I have enclosed a copy of the directory printout that I made notes on as I went through the files, so that you can get the gist of the seriousness of the damage to the files.

Only the ticked and OK'ed files are recoverable, and sadly for you, not enough of the ones that mattered. I gave them all a very good work over {I needed to follow and use 'The HandBook of Commodore Disks' to track everything}. Once a VLIR files index table is corrupted, there is no way of recovering the file. Many of the links had no existing sector, and those that did can't exist without the others. The changes that I did make, I wrote back to your 'copy' disk. The files that are recoverable you can copy into your RAMdisk and save them on a newly formatted disk. This disk has had it - reformat it before ever using it !!. You were probably going to anyway.

I don't know why GEOS does this sometimes. I have been hit the odd time or two, but I don't have half the set-up that you do. DualTop v3.0 is a wonderful program, I use it in preference to DeskTop every single GEO-day. v3.0 is a bit more sophisticated that v2.5, it has many features that will save you from yourself {no offense there}.

I am sorry that I couldn't be of more help, but these files are well and truly 'cooked'. I did spend a couple of full days working on your disks files, and I threw everything I had at it. Que sera sera {whatever}! A lot of the times there are many things you can do to recover things in GEOS, but not when they are this bad, and they really are 'that bad'. I have a feeling that you suspected as much anyway, but it is small comfort for you. You don't owe me anything, I think you have suffered enough loss. I have been there, and it is a sickening feeling in the pit of the stomach, when you know that you have probably ruined the only copy you had of some important work.

Thanks for your thoughts, re my 1995 health problems. I am just about back up to speed now, although when your letter arrived [7Aug95], I was so sick from the third bout of Bronchitis in four weeks, it was a pleasure to be cheered up so easily !.

Next month, I am thinking of some light GEOSing interests - yes, games in GEOS, that run under GEOS !!. Until then, happy GEOSing.

Send in your comments, or great GEOS discoveries, and I will respond when I can in this column, unless you wish a private reply, in which case please send a SSA{Business}E and I will write you back. Special thanks to Rick Coleman {Photo Mover fame}, our USA GEnie BBS correspondent for your continued support, and to Michael Renz {Performance Peripherals Europe}, our German correspondent, for your continued support.

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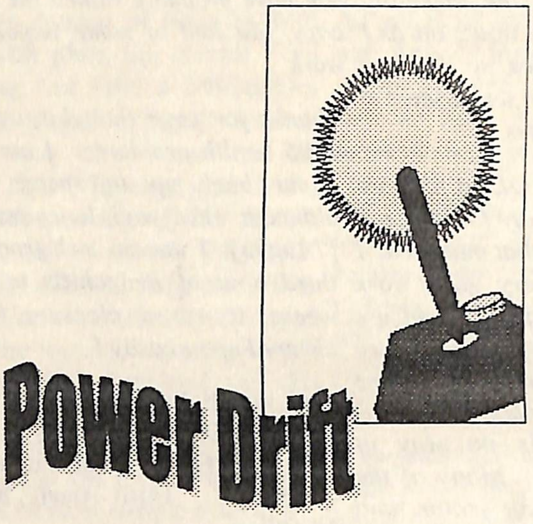
*{**} The World of GEOS HandBook Series {I, II, III}, and The HandBook of Commodore Disks, and GEOS in Review are currently available from JMV Grafix*



Power Drift

1996 is upon us, and the year promises to be a good one for all Commodore enthusiasts around the globe. Coders and companies are returning to the platform which gave them their first break in the then-new world of computer marketing on a mass scale. With local products like 64Net and international items such as the CMD accelerators coming onto the scene, users are finally able to experience - after many false starts - the Commodore Renaissance. Enough of the sentiment. On with the games!

The resurgence of support for the C64 is leading to several things, one of which is a new wave of software being produced by small labels able to cater for the grass-roots user without being caught up in the Ferrari frolics of Imagine and the like. One such group is Threshold Productions, an American distributor which is giving crack coders from around the world the chance to have their names in lights and their games in drives.

You may remember my recent review of Lazer Duel, a fine strategic tank simulator guaranteed to keep you on the caffeine for many a summer night. This issue we're going to look at another one of their products which attempts to break new ground in one of the oldest and most popular genres in the history of computer software - the platform game.

No New Year would be complete without its latest offerings following in the footsteps of classics such as Great Giana Sisters, New Zealand Story and Rainbow Islands. That's not to mention Bubble Bobble, Cauldron II, Ghosts'n'Goblins and Hawkeye. All of these have lit up the top spot in the charts over the years, and now a group called Inflexion have released the newest episode in this long-running saga... Slaterman.

F-14 TOMCAT TIPS

But wait! Before launching into the action, we must pause to thank Peter Rose of Port Moresby in Papua New Guinea for his hints concerning F-14 Tomcat, a military flight simulator from the late 80s. Warren put this in Letters Link in November but I do appreciate that some gamers might have skimmed over that part in their efforts to reach The Power Drift, so I believe that it's well worth reprinting here.

Peter wrote: "For a long time I had trouble with the early flight training tests. I used to try and follow the instructor but now, by learning the hard way, I've found an easier method. All you need to do is follow the arrows being displayed in the lower left corner of the screen. They become illuminated, indicating the direction you should go next." Thanks for the hints, Peter. If only life was that simple.

SLATERMAN

And so on to the main item, Slaterman. As with all Threshold Productions items which have reached me thus far, the game comes packaged in one of those resealable plastic bags - you know, the ones you use to strangle small children when they become tiresome - with the cover and documents wrapped around the disk. An easy method of getting the software to the customer without fuss or frills so that the real money can go into the development of a quality game, which is really what we're all after in the long run. The cover displays a couple of screen shots from the game and a colourful title.

Once inside, the instructions give clear and simple directions as to the loading and playing of the game itself. The basic gameplan of Slaterman is exactly that - basic. You are a little spacesuited character running horizontally across the screen which scrolls with you. Along the way, there are any number of platforms of different lengths and altitudes, most of which are inhabited by a little monster ignorantly scampering from one end to the other. The aim of the game is to collect all of the stars (small, white, rotating things - you can't miss them) on that particular level and reach its end point before you run out of time. On the way, you have to negotiate bottomless pits, electric oceans, and of course the beasties themselves who don't actively pursue you but who in their mindless habitual actions constantly make a nuisance of themselves. Any contact with the enemies and you die. Any drops off the bottom of the screen and you die. Any dawdling so that the timer runs out and you die. It's a nice friendly kind of game, isn't it?

Luckily, there are a few attributes to assist your Slaterman in his quest. Namely his dexterity, which allows him to leap around like a streaker at the cricket, and a new piece of wonder technology in the thunder gun, which releases a bolt of lightning at your command. Your enemies don't seem to like lightning. One touch and they die. Funny that.

PRESENTATION AND OPTIONS

Once the game is loaded and you've whacked the space bar upon the appearance of the Inflexion and Timsoft logos, a boppy title tune reminiscent of the Commodore's heyday fires up and the title screens flash past. It's a neat presentation, with the credits appearing on coloured blocks sliding out from the sides of the screen. Some more loading follows and the options screen comes into view. The flashy logo from the cover displays the name of the game, and below are the four choices you need to consider. "Sta rt Game" is obvious enough, as is "Credits" - they seem to like their egos, these programmers, don't they? Never mind. They've done a good job, and they deserve some recognition. The other two require a mention. "Enter Password" seems to be becoming a welcome hallmark of Threshold Productions software.

Every fifth level that you conquer in the game (should you get that far - it's no certain thing with my abilities!) concludes with a password. After the monsters have finished you off and you are forced to start again, it's possible to skip through to the section of the game which you were attempting by entering a password.

This option is one which has been too long overlooked considering the relative ease with which it can be incorporated into a game, and so many of the classics such as Great Giana Sisters became increasingly frustrating when you lost your last life at the end of level 30, having never seen level 31, and you were forced to return to the beginning at Level 1 and complete the early levels time and time again.

The password system which is used effectively in Lazer Duel makes another welcome appearance in Slaterman, and the gamer in the winner with the coders due much congratulations for taking the time to add in this little detail.

The last item on the options screen is that of "Music/SFX", which allows players to choose the level of aural interaction they want to have with the game. This is another point which answers my often desperate pleas. If you think yourself a musical type, pick the music option. If, on the other hand, you prefer loud bangs and blasts to fill the room during play, you can choose SFX. If you think that computers should be seen and not heard, take the "Silence" selection. But if you are an experienced gamer who was seen so many games over the years been let down by a failure to incorporate music and sound effects properly if at all, the "Music+SFX" option must be yours. At last you can keep the music throughout the game, and the SFX are superimposed when necessary. Good one, Inflexion - it's a sadly rare item but one which begs inclusion and which helps Slaterman to stand out from many of its recent competitors.

GRAPHICS

The graphical side to Slaterman is good in its originality and variety. The background is not simply a plain brick wall or a dull sky, but a midnight blue shade sometimes scattered with bubble-like circles of different sizes which have a neat lighting effect, and at other times given a contrasting lighter shade which "drips" from the top of the screen.

Movement in the background works well - little electronic waves slide across the bottom of the screen at certain points. The enemies are also nicely animated , and there's a fair range of the beasties too... pigs, cats, dogs, mice, elephants, birds that look like they've come straight from Ghosts'n'Goblins, snakes that slither around, and small things in helicoptors (to be specific). There aren't any major flaws in the graphical deisgn, and the artists have done a good job to create something new and fresh in an area that tends to become pretty stale after twenty games a year along the same lines.

SOUND

The funky tune that accompanies each level is not bad as a standalone, but it does tend to get a little repetitive after a while. The problem is not so much the overall track, but the way in which it's done. It's one of those that begins with the drums, then a few rounds later the bass kicks in, and then later still you get the synthetic guitar line over the top. These "building" pieces are usually fine, but this is the only in-game tune and it begins anew at the start of each level.

For people like myself who need every last dash of the timer that's OK, but I know well enough that there are some veterans of Rainbow

Islands and the like who can blast their way through a level before the music even gets to the bass - and as you can imagine you tend to hear a lot of drum noise and precious little else. Nothing to worry about if you're a drummer, but like to pretend that our readers are intelligent kind of people and most discerning gamers would probably end up opting for the silence or SFX options (the standard fare - blasting sounds when you fire and when the baddies are wiped out) after listening to the skins being whacked time after time. The track is fine - although I think that it could be varied from level to level, a process shown to be achievable by the wonderful sound in Turrican and its sequel - but a bit inappropriate in its structure considering that it keeps leaping back to the beginning.

GAMEPLAY

Always the area that makes or breaks a game, the element of gameplay is a bonus in Slaterman which more than compensates for the disappointment over the music. The game allows you to shoot whilst jumping, a freedom very much appreciated by any who have tried their hand at a piece of software which prohibits this. Also possible is a change of direction in the middle of a jump, a less common ability in platform games not of the classic mould.

One feature which particularly pleased me is the option of going backwards. After all, when you have to collect a certain number of stars to complete a level, there's always the chance that you can miss one and it's often a mad scramble back through the level to find where you overlooked it before the timer reaches zero.

A major complaint about of many of the big names in this genre was that returning to pick up bonuses left behind early in the stage was impossible. Slaterman addresses this with ease and the scrolling is as easy backwards as it forward, the character remaining in the centre of the view at all times. All of the necessary mechanics for a game of this type are present. as well as a few of these features which push it above the also- rans. When you die, there is no blanking of the screen, no returning of the character to a predetermined regeneration point - merely a moment's hesitation before the new man (provided that you have one, of course) drops from the top of the screen, flashing to display the invincibility which lasts for four or five seconds, to the point where his predecessor was immediately before his untimely demise. This kind of touch forms part of the very playable style of Slaterman and helps to make it a worthy addition to any software collection.

OVERALL

One of the best platform games to be released in the past few years. If you never laid your hands on the classics, pick this one up. It provides a neat blend of the attributes which put similar games before it on the top of the charts.

- **Graphics: 83%**
- **Sound: 72%**
- **Gameplay: 87%**
- **Overall: 84%**

SO...

That's the end of the first column of 1996, and I hope to have details about the Australian distribution of Threshold Productions software Down Under soon. For the American readership. Threshold can be contacted direct at:

17730 15th Ave NE
Suite #229
Seattle
WA 98155

So Until next time, enjoy your summer in the south and the winter in the north, and we'll be back soon.

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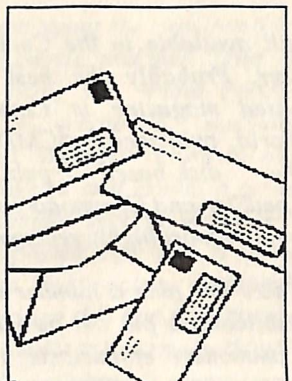
Letters Link



Well, here it is, our first "Letter's Link" for 1996! Before we dive in to the mailbag, may I take the opportunity to wish you all a happy New Year! May 1996 bring you all all the best!

I think there could be a little something for most of you in this lot, so let's get on with the show!

A POINT OF PHILOSOPHY

Wade Bell of Victoria writes in part:. . . . I often wonder where modern Computer technology is leading mankind! I use and enjoy a Commodore 128 admittedly, but I do not sit in front of a monitor for hours on end playing games or other nonsensical pastimes. My computer is used as and when needed for wordprocessing, bookkeeping, and the occasional bit of (very amateurish) programming.

Surely people must realise that mankind has developed his pre-eminence in this world of ours through rational thought and actions being superior to, and dominating over, the reflexive responses of animals. To actually develop something as potentially powerful as the computer could be for the enhancement of mankind's "rationality", and then turn it into a "games machine", dragging us back in to the realms of the beasts with its concentration on reflexes, strikes me as the ultimate desecration of God's gifts to humanity.

Look at television! What a great opportunity that was to bring culture to the normal person. And what of education? Surely, before computers, no greater potential in an educational tool has ever existed! Yet what happened! "Baywatch" and "The Simpsons"! Computers are heading down that very same steep path at an increasing rate of knots. It seems to me that mindless entertainment is fast becoming the worlds most valuable commodity. Where will it all end?

Well, for a start, Wade, I tend to disagree with the crux of your argument in that mankind has achieved dominance through the exclusive use of reason. Reflex actions have played a huge part in humanities rise to prominence. I'm sure most of us would be acting in a purely reflexive way if we put our own life at risk in order to save another! And, since you seem to hold a strong Christian influence, what of David and Goliath? Strikes me as mighty illogical to tackle a man twice ones size with nothing but a strip of leather and a rock! In any case, let's get back to computers! I am not a game player nowadays! Not through choice, but through the sheer lack of spare time. Once in a very long while, however, I will fire up a game for reasons of review, testing for Disk-Coverer, or just because I feel the need for a break. I'm not ashamed of that, heck, I'm human!

But game playing IS a part of computing, just like the utilisation of business applications or creative utilities is. Whether you actually play games will depend on what your interests are, what time you have to spare, and any other of a number of possible criteria that may come in to effect. To label games as a whole as detrimental to humanity is not only silly, but ignores the facts. Many games actually actively encourage, and indeed, can't be completed, without a player utilising reason and logic in order to solve puzzles and/or riddles contained therein!

I do agree with your evaluation of television, however, but I tend to be very fussy about what I watch. However, I feel that, whilst computers most certainly do have the potential to be misused by some, in the main, and in the hands of responsible people, they become the powerful and invaluable creativity and educational tools they were designed to be.

READING MATERIAL

Sticking to Victoria for a while, and Michael Wright writes: I have only recently discovered Commodore Network and was wondering what other Commodore specific publications are still available (if any!). They don't need to be Australian as I don't mind sending money overseas, although local distribution does make things a little easier.

There are a number of publications

still available to the Commodore user. Probably the best paper-based magazine is Commodore World, published by CMD, whilst the disk-based publications LoadStar and Commodore Cee can both be most highly recommended.

There are also a number of small publications put out by individual Commodore enthusiasts. The best of these that I have seen is "The Underground". In any case, here is a listing of the ones I know of:

Publication name: Commodore World
Publisher: Creative Micro Designs
Address: P.O. Box 646
East Longmeadow
Massachusetts,
U.S.A. 01028
No. of Issues/sub: 8
Cost: $57.95 U.S.
Aust. Distributor: Commodore Network
Local Cost: $76.00 Aust.

Name: LoadStar 64
Publisher: J & F Publishing
Address: LoadStar
P.O. Box 30008
Shreveport
Louisiana
71130-0008 U.S.A.
Media: 2 X 1541 disks or 1 X 1581 disk
No. of Issues/year: 12
Cost (direct): U.S.$109.95
Aust. Distributor: JDB Software
Local Cost: Aust.$

Name: LoadStar 128
Publisher: J & F Publishing
Address: LoadStar
P.O. Box 30008
Shreveport
Louisiana
71130-0008 U.S.A.
Media: 2 X 1541 disks or 1 X 1581 disk
No. of Issues/year: 4
Cost (direct): U.S.$49.95
Aust. Distributor: JDB Software
Local Cost:

Name: Commodore Cee
Publisher: Jack Vander White
Address: P.O.Box 232115
Sacramento
California
95823 U.S.A.
E-Mail:
JackVanderwhite@cee-64.wmeonlin.sacbbx.com
Fido: 1:203/999
BBS: 1-916-395-9733
Media: 3 X 1541 disks
No. of Issues/year: 6
Cost (direct): N/A
Aust. distributor: Commodore Network
Dist. Address: 20 Acacia St.
Cobram
Victoria 3644
Australia
Local Cost: Aust:$36.00

Name: The Underground
Publisher: Scott Eggleston
Address: 4574 Via Santa Maria
Santa Maria
California
U.S.A. 93455
Format: Paper based, A5 format
No. of Issues/year: 6
Cost (direct): U.S.$21.50
Aust. Distributor: None
Local Cost: Not Applicable.

Name: GeoNews
Publisher: GeoClub
Address: C/O Frank Cassidy
55 High Bank Rd.
Droylsden
Manchester, Lancashire
M35 6FS England
Format: Newsletter
No. of Issues/year: 12
Cost (direct): £5
Aust. Distributor: Peter Hunt
Dist. Address: 40 Betula St.
Doveton
Victoria
Australia
Local Cost: Aust.$10

Name: Geos Publication
Publisher: N/A
Address: 713 East Main St.
Independence
Kansas
67301-3726 U.S.A.
Format: Newsletter
No.Issues/year: N/A
Cost (direct): N/A
Aust. Distributor: None
Local Cost: N/A

Name: 64'er
Publisher: Magna Media
Address: Post Fach 1304
D-85531,
Haar bei Munich
Germany
Phone: 49-89-461-3192
Fax: 49-89-461-35001
E-Mail: mmatting@cube.net
Format: glossy mag (German language)
plus disk
No. Issues/year: 12
Cost (direct): DM 129.00
Aust. Distributor: None
Local Cost: N/A

Name: Gatekeeper
Publisher: Bryan Pease
Address: attn. The Gatekeeper
610 First Street
Liverpool
New York
13088 U.S.A.
Format: Newsletter
No. Issues/year 6
Cost (direct) N/A
(U.S.11.00 for U.S. residents)
Aust. Distributor: None
Local Cost: N/A

Name: 8-Bit
Publisher: Atta Bitar (Anders Reiterswerd)
Address: N/A
Phone: 82-66-75-1
Format: Unknown (Swedish Language)
No. Issues/year: N/A
Cost (direct) 100.00 sek
Aust. Distributor: None
Local Cost: N/A

There are a couple of others that I have left out for various reasons, principally irregularity of publication (as if I can speak!).

PHILIPPINES COMMODORE

Just for a dose of the exotic, Palomar Mendes of Davao in the Philippines writes: I have heard much of Escom's plans to re-release the C-64 in Asia. Most of the reports seem to center on China, although India seems also a possibility. But what of the Philippines? Have you any information? If not, can you find out?

OK, I've tried to fax Escom several times, but have not received a reply as yet. All the information I have to hand at the moment seems to indicate China and Eastern Europe as the principal target markets at the present. I will keep you informed.

FONT FRUSTRATION

Bill Linnaker of Queensland writes: Perhaps this should be forwarded to your wonderful GEOSgenie but since I'm writing to you and that I'm basically a lazy sod, I'll leave that for you to figure out!

I am continually being frustrated by a "Sorry, Font too large" message when fiddling around in geoPaint. What causes this?, and what can I do to work around any restrictions?

Well, Bill, let's look at what causes this phenomenon and then we can pass on to how we can work around the problem.

The "Sorry, font too large" message has absolutely nothing to do with the physical size (point size) of a troublesome font. It, in fact is due solely to the actual number of bytes a font takes up. Any given GEOS application will contain a "font buffer", an area of memory set aside to contain the currently active GEOS font. The size of this buffer will vary considerably between applications, and, indeed, between versions of GEOS itself.

Here is a guide to the font buffers available in three major GEOS applications:

64 and 128 geoWrite:	*>6000 bytes*
geoPublish:	*<>4096 bytes*
geoPaint 64:	*>4100 bytes*
geoPaint 128	*>4500 bytes*

Now, let's look at ways to fit those larger fonts in to the application we intend to use. The first, and my preference, is to copy a desired font to a work disk and edit out unwanted characters as necessary to pull a font in under the required size. I prefer this method because it allows you to put together a collection of fonts "ready to use" with your application on future occasions. Any of the good GEOS font editors should be able to handle the task quite well!

An alternative for those who feel unable to perform the above procedure is to use "Paint Pages". What we will do in this case is type in our text using the required font within geoWrite, and then "print" it to disk using the "Paint Pages" driver to create a GeoPaint document. We then return to our paint program and create a scrap of the needed section which will then be pasted into our original GeoPaint document as required. I've re-written this last bit a couple of times, and it still seems as though I haven't explained the procedure very clearly. I hope you get the idea! Now you know why I prefer the first alternative! However, it does work quite well, and I'm sure some of you out there will prefer it.

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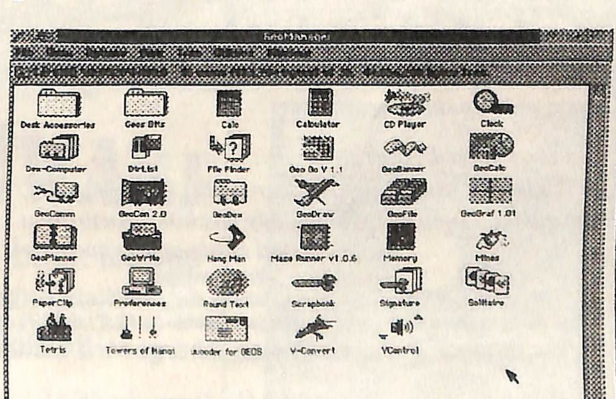

FOR SALE

- 1 Commodore 64C, slimline case, excellent condition including manual, power supply and video cable $60
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CONTACT:

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- Zzap 64 - October '88, November '88, December '88, March '88
- Commodore Computing International - April '88, August '88, September '88, October '88, January '89
- Compute! - May '84, March '85, April '85, May '85, August '85, September '85, November '85, December '85, January '86, March '86, August '87
- Compute Gazette - July '84, September '84, October '84, April '85, June '85, September '85, October '85, November '85, December '85, January '86, July '87, August '87, March '88, November '88, March '89

CONTACT:

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18 Windsor St, Edgeworth, N.S.W. 2285

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C64 Programmer's Reference Guide	$20.00
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All software is original and has manuals. Payment COD include postage

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The three programs above are suitable for use with the REU.

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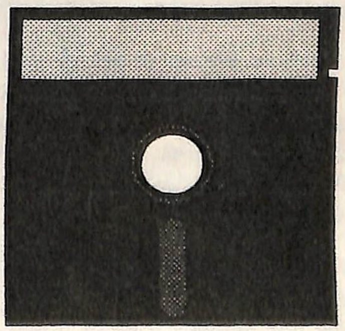

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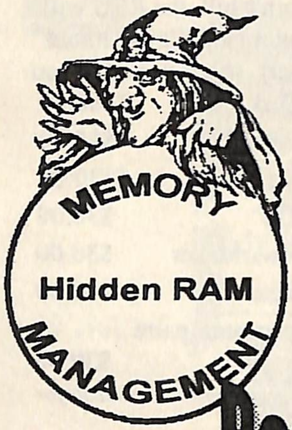


Basic Magic

Commodore 64 programmers are usually restricted to two primary areas of memory for their programmes:

2048-40959 Basic Ram, and 49152-53247 generally used for machine code, sprite or character data etc.

However in their wisdom, the people who designed the 64 did it in such a way that areas of ROM could be banked out to reveal a substantial amount of RAM that can be used by the programmer.

This is generally known as hidden RAM, and many 64 programmes use this. One good example is Super Aide, the programming utility that enhances the 64's command set by adding a host of useful instructions, such as line renumber, pause listing, simplified disk commands etc., (Super Aide is available from most C64 PD libraries).

In this case the use of hidden RAM is very beneficial as it allows the programmer to have the benefit of this utility whilst leaving all of BASIC and 49152-53247 free for a programme.

Any data at all can be stored in hidden RAM, and this can be a great bonus when a lot of graphics or sound data is needed within a programme.

There are two 8K areas of hidden RAM, they are situated behind Basic ROM and the Kernal ROM.

The crux of the matter is at memory position 1, the onboard I/O port.

We are going to talk about the 8 bits in this byte so for those who may not be too conversant with bits here is a bit of info -

Each byte contains 8 bits.

The bits are called bits 0-7, so bit 0 is the first bit.

Bits can be on or off. When off the bit contains a 0. When on the bit contains a 1.

The numerical value of a bit that is on is represented by binary numbering

i.e. bit 0 on = 1

bit 1 on = 2

bit 2 on = 4

bit 3 on = 8

bit 4 on = 16

bit 5 on = 32

bit 6 on = 64

bit 7 on = 128

Any number at all between 0-255 can be represented by turning the appropriate bits on or off, a very cost efficient way of representing numbers and the bottom line when it comes to how computers work. A computer only really knows 2 things - on or off.

So back to hidden RAM and the I/O port at byte 1.

Bits 0-2 in byte 1 have been given names. Bit 0 is called Loram, Bit 1 termed Hiram, and Bit 2 has been named Charen. Their uses are as follows:

Loram controls Basic Rom

Hiram controls Kernal Rom

Charen controls Character Rom

Anyone who has used BASIC to transfer the C64's character set from ROM into RAM will have dealt with Charen.

The command POKE 1, PEEK (1) AND 251 is used in this process. This turns off bit two (which holds the value of 4 when on). And-ing with 251 ensures that the rest of the byte remains intact whilst placing a zero in bit two.

When Charen contains a zero then access can be gained to the 4K of character memory that sits behind memory at 53248 onward. The data is then moved out to wherever the user wants it, and then Charen is reset with POKE 1, PEEK (1) OR 4. This same method applies when accessing the hidden RAM behind the BASIC ROM and the Kernal ROM.

We'll use the BASIC ROM as an example. This is an 8K area located between 40960 and 49151.

POKE 1, PEEK (1) AND 254

will turn off bit 0 (Loram) in byte 1, allowing access to the 8K of memory that is behind the BASIC

ROM. Once this is done, data can be read from this area (40960-49151) and moved to another area if required. After this is done POKE 1, PEEK (1) OR 1 turns BASIC ROM back on. Obviously this cannot be done from BASIC. When the BASIC ROM is banked out, then BASIC is out to lunch, taking a short holiday, temporarily unavailable, back soon.

As a result, this must be done with machine code and here is a short routine with the required data statements and a suitable BASIC loader.

```
10 FOR P = 40960 TO 40960 +
255
20 POKE P, 22 : NEXT
30 FOR P = 49152 TO 49175
40 READ A : POKE P, A : NEXT
50 DATA 165, 1, 41, 254, 133,
1
60 DATA 162, 0, 185, 0, 160,
157, 0, 64
70 DATA 232, 208, 247
80 DATA 165, 1, 9, 1, 133, 1,
96
90 SYS 49152
```

Lines 10 to 20 Poke some data into address 40960 onwards. Just to see if this actually works, lines 30 and 40 Poke the machine code, lines 50 to 80 supply the actual code to be poked, and line 90 activates the routine. The actual code does this:

Ands memory location 1 with 254.

Moves 1 block of memory from 40960 on to location 16384 on.

Ors memory location 1 with 1.

After running this try peeking at memory address 16384 on and you'll find a whole lot of 22s there, transferred from hidden RAM. Please note that if a programme is using interrupts, you may also need to turn the timer off first with a:

```
POKE 56334, PEEK (56334) AND
254
```

and on again with:

```
POKE 56334, PEEK (56334) OR 1
```

(or assembler equivalent)

Obviously other machine code routines need to be written to move more than just 256 bytes, but the Loram setup that surrounds the transfer is constant. This is one of those cases where a dedicated BASIC programmer must bite the bullet and become conversant with some Machine Code, because as previously mentioned, this hidden RAM cannot be accessed using BASIC itself.

Well, so much for getting the data out, but what about getting it in there in the first place ? This is easy. Try poking a number to a memory position between 40960 and 49151. Now PEEK that same byte.

Wait a minute ! The number you poked in is not there. But it is in the hidden RAM behind Basic ROM.

When you peek say 40960 you are looking at the overlying ROM, but any direct poke will go to the shadow area. So, data can be loaded or poked in directly without setting the I/O port. Hidden RAM behind the Kernal ROM (57344-65530) is handled similarly, except that you will be using the Hiram bit.

When I first tested this method I took a bitmap data file (8000 bytes), changed it's load address to 40960, loaded it in, and then used a machine code routine to move the 8000 bytes of data to BASIC RAM in a split second. Having so much extra memory for storage is a great bonus on the 64.

For some reason, information about hidden RAM does not seem to be as visible as data on the many other useful aspects of C64 programming. Consequently I had to work this all out by referring to some fairly nebulous sections in the Commodore 64 Whole Memory Guide by Tim Arnot. After almost giving up, it finally all came together eventually and I have used this method on a few occassions recently with 100% success. If anyone has further ideas or information on the use of hidden RAM I wouldn't mind hearing about it.

In the first article of this series I mentioned a disk with some prgs relating to the subjects covered.

Well this is now done, and it includes the text of these articles in sequential file format, examples of reconfiguring to bank 3, hidden RAM use (including the bit map mover and source code), and various other memory related files and programmes.

Send $5 to Brunswick Publications (or 10 45c postage stamps would be OK) and ask for the Memory Disk. The address is:

PO Box 745
Campsie
NSW 2194
Ph (02) 759 7343

There are a few more areas I could cover on the subject of memory, and another article may appear at a future date.

So..Thanks for the memory

ClubLinks

Hi there. Welcome to the first Clublinks Column for 1996.

Despite the fact that we 64/128'ers are keeping up with technology, there are still quite a few clubs out there that are having trouble surviving. One of the clubs to which I belong in Sydney is one such club.

After a great year our memberships have dropped right off and we are seriously having to consider admitting users of other machines as members to survive. We are now faced with the decision that has already faced a lot of clubs - do we just hang in there and hope things turn out alright or do we change our club rules to allow non 64/128 members.

We know that many of our former members will come back if we open our membership up. We have members that do not want to change but we know that we have to survive somehow. With our strong core of 8-bit members we should survive no matter what decision we make.

There are also a few groups that have let me know that they no longer cater for 8-bit members although 64/128 users would not be turned away. In most cases they would be put in contact with other users or former members, who will be able to assist with any problems or enquiries. There are groups that specifically cater for postal members for those that want to be part of a club. There is a list of such groups later in this column.

My friend Jim Mullen in New Zealand tells me that the 64 club in Dunedin has folded. It seems that many users in "Kiwiland" are now changing to IBM's and many New Zealand clubs are doing it very hard. I have also been given information that suggests the Christchurch group, which was probably the largest group over there, also does not cater any more for 64/128 users. The situation for their clubs is probably a lot worse than over here.

Ivan Blitz, of the Melbourne club, is asking for clubs around the country to drop him a line about their clubs so that the information can be published in the MCCC newsletter's "Around Australia" column. The club wants to promote other clubs amongst its members so that everyone in all the clubs can draw on each others' specialities and resources. Ivan's address is 16 Ferngully Road, Cockatoo, Vic 3781. Woombug, the Albury/Wodonga and the Wollongong clubs have all been profiled so far. MCCC would also like to exchange newsletters with other clubs as well.

The Albury/Wodonga club now meets twice monthly; on the 1st Tuesday and the 3rd Monday. This club, which caters for Amiga users as well, is getting along quite well. They cater for out-of-area members also, so you can write to the club at PO Box 1014, Albury, NSW 2640 or phone either of the contacts mentioned in the club listing at the end of this column if you want to.

The following groups or organisations have expressed their desire to exchange newsletters and to regularly correspond with clubs and users in Australia and New Zealand.

- Commodore Association of Lake Forest, 22776 Madrid Drive, Lake Forest, CA 92630-4625 USA - Scott D Merrill, President.
- Emergency Call BBS, PO Box 509, Gleichen, AB T0J 1N0, Canada - Tom Gislason, EMT-A, Sysop. - BBS Number 403 734 2382 Voice Number 403 734 3511. To phone Canada dial 0011 1 then Canadian number.
- Commodore Users Group of Kansas City - Frank Scott, President/Sysop. Write to this group c/- Scott Roseboom, PO Box 213, Woombye, Qld 4559 who will pass it on to the club.
- ACES (Active Commodore Enthusiast Society), PO Box 165, Albany IN 47320-0165 - Don Gilstrap, Editor. *The Editor of Loadstar likes to receive club newsletters on a regular basis from clubs all over the world. Each six months all clubs that have sent in newsletters get listed in Loadstar. Each edition of Loadstar has a regular feature regarding club newsletters. A newsletter competition is conducted each year as well. The address is Loadstar Editor, PO Box 30008, SHREVEPORT, LA 71130-0008 USA. To save postage clubs can mail their newsletters to Loadstar's Australian agent for forwarding. The Australian address is Loadstar Editor, c/- JDB Software, PO Box 244, WARILLA NSW 2528.

Keep the information about the clubs coming. I look forward to reading your newsletters each month. The address for this column is

Clublinks,
PO Box 244,
WARILLA
NSW 2528

or you can telephone me on (042) 97 3159 or fax (042) 97 6118.

Until next time,

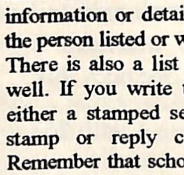
BUCKY.

CLUB LIST

This is a list of some of the user groups in Australia and New Zealand that cater for members with 64's or 128's. If you want any information or details about the club contact the person listed or write to the address shown. There is also a list of mail/postal groups as well. If you write to a club please enclose either a stamped self-addressed envelope, a stamp or reply coupon for your reply. Remember that school and public holidays as well as local events can affect meeting dates. ALWAYS check with the club contact first.

Listings marked with an asterick (*) have been altered since last issue.

AUSTRALIA



*ACT8CC (Canberra 8-bit club), 1 Kitson Place, FLOREY ACT 2615 - contact Gordon Wormald (06) 258 2259 or Ted Woodwell (06) 281 6347 for all information regarding this club, including meeting times and venues.

*Albury/Wodonga Commodore User Group Inc, PO Box 1014, ALBURY NSW 2640 - 1st Tuesday and 3rd Monday 7.30pm Gas & Fuel

Corp Building, Hume & Townsend Sts, Albury - Rod Graeber (060) 21 3703 or Helen Egan (Secretary) (060) 24 5114

*C64 Developments Inc (Wollongong C64/128 Club) PO Box 150, UNANDERRA NSW 2526 - 2nd Friday 6.30pm Unanderra Community Centre, Princes Highway, Unanderra - Sue Smith (042) 71 7243

*Commodore 64/128 Club of NSW PO Box 244 WARILLA NSW 2528 - 3rd Wednesday except January 7.30pm Minchinbury Neighbourhood Centre, Minchin Rd, Minchinbury - Laurel Nicol (Secretary) (02) 628 3516 or John Buckingham (President) (042) 97 3159. Fax (042) 97 6118

*Commodore Hornsby User Group Inc, PO Box 1578, HORNSBY NORTHGATE NSW 2077 - 2nd & 4th Wednesdays 7.30pm St Leos College, Wahroonga - Frank Bunton (02) 487 1062

*Commodore User Group (ACT) Inc, PO Box 409, CURTIN ACT 2605 - This group has now folded but the meetings on the south coast at Batemans Bay are still held on 3rd Saturday at Pearly Beach Baptist Church Hall - phone Matt Blydenstein (06) 281 2714 for ALL information regarding this group.

Muswellbrook Combined Computer Group, PO Box 648, MUSWELLBROOK NSW 2333 - contact Jim Shorter on (065) 47 9144 for meeting details.

*Tuggerah Lakes Commodore Users Group, PO Box 659, TOUKLEY NSW 2259 - phone Bill on (043) 92 2567 or Ted on (043) 96 5927 for any information.

Melbourne Commodore Computer Club Inc, PO Box 177, BOX HILL Vic 3128 - 2nd Wednesday 7.30pm Courtyard Room, Nunawading Civic Centre, Whitehorse Rd - Bernie O'Shea (President)(03) 438 1625 or Bob Morrow (Secretary) (03) 846 4217

Yarra Valley Computer User's Group (formerly Yarra Valley Commodore Users Group) - Contact Jason Huxley (03) 728 4163 for all information.

South Australian Commodore Computer User Group Inc , PO Box 427, NORTH ADELAIDE SA 5006 - 1st & 3rd Mondays 7.30pm North Adelaide Primary School- Phil (08) 381 8444

Southern Districts Computer Users Club Inc (Adelaide), PO Box 991, MORPHETT VALE SA 5162 - 3rd Wednesday 7.30pm Home Economics Room, Christies Beach High School (West), Beach Rd, Christies Beach - Robert Cloosterman (08) 382 0781

Computer Club of WA Inc (Perth) - phone Tom Lee on (06) 332 6374 for all enquiries. This club does not cater for 64/128 members but Tom will put users in WA in touch with other users.

Cairns Commodore Users Group,PO Box 7, EARLVILLE Qld 4878 - 1st Tuesday 7.30pm Cairns Education Centre, Greenslopes Road, Edge Hill - Bruce Bimrose (070) 54 1949

*Commodore Computer Users Group (Qld) Inc - This group is now Amiga only but will assist any 64/128 users as necessary - Contact Barry Benyon 14 Ash Ave Woodridge Qld 4114 (07) 290 1521

Woombug 8-bit, PO Box 213, WOOMBYE Qld 4559 - 4th Saturday each second month 1pm - 4pm Tea Room, Masons Hall, Hill St, Woombye - Scott Roseboom (074) 48 5845

Tasmanian Commodore Users Group, GPO Box 673, HOBART Tas 7000 - 3rd Wednesday 7.30pm Derwent Regional Library, Glenorchy - Stephen Cook (002) 47 9985

NEW ZEALAND

Etc. Etc. Etc. Etc.

As well as from the clubs themselves up-to-date information regarding any clubs can also be obtained from Jim Mullen, 110 Main South Road, OAMARU Phone (03) 434 6026.

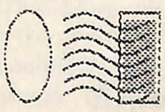
*Christchurch Commodore Users' Group Inc - No longer caters for 64/128 users. For information contact Dave Maguire (03) 348 5976

Kapiti Commodore Users Group, 24 Makarini St, PARAPARAUMI - 1st Friday 7.30pm Kapiti College, Margaret Rd, Raumati Beach - John Hughes (04) 298 4349

Manawatu Commodore Users Group, 83 Havelock Ave, PALMERSTON NORTH - 1st Monday 7pm St Marks Church Hall - Sydney Mounsey (06) 357 9858

Whangarei Combined Computer Club - contact John Pitt (09) 438 6651 for all information regarding this club.

POSTAL GROUPS



All these groups are mail based groups that cater for those users who are not able to attend a normal club or want to join a second club. Most provide a regular newsletter and give you access to PD programs and program information as well as give you the opportunity to meet other members through correspondence or phone contact.

GeoCLUB (GEOS users) c/- Peter Hunt 70 Betula Street, DOVETON Vic 3177 - Frank Cassidy (03) 791 4991

Hills 64 Group PO Box 537, COCKATOO Vic 3781 - Ivan Blitz - (059) 68 9323

Plus4/C16 Users Group 36 Western Highway, BLAXLAND NSW 2774 - Tony Ellis (047) 39 1528

The Old Codgers (over 40's) 18 Windsor Street, EDGEWORTH NSW 2285 - Gordon Screen (049) 50 8161 (night time only)

*Woombug 8-bit, PO Box 213, WOOMBYE Qld 4559 - Scott Roseboom (074) 48 5845

Meeting 64/128 Users Through The Mail C/- Francis Redmond, Route 7, Box 7614, PALESTINE, TX 75801, USA - Francis Redmond

Many regular clubs can also cater for postal or associate members as well. In most cases out of area members would be most welcome. Check with your local club.

We've Moved!

We're now located at:
20 Acacia St
Cobram
Vic 3644
Tel:
(058)
711 707

Commodore Network Magazine
The support magazine for Commodore 8-bit Computer enthusiasts

Commodore Network

Mario Petrolati

CPM Corner

AN INTRODUCTION TO CP/M

Admittedly, there are not too many 128 users around here. However, it appears that, to many, CP/M remains that great, unknown, and incomprehensible beast laying buried deep within their machine. I hope that this small article will encourage some of you to at least look once more at this powerful and fascinating facet of 128 computing.

Many of you will have noticed that CP/M mode is pretty much the odd man out on the 128. When invoked, it causes our machine to forget that it's a Commodore. In fact, CP/M mode is more akin to operating a PC than a Commodore. CP/M is actually more closely related to MS-DOS than any Commodore mode.

Used extensively in the early 1980's by a myriad of computer manufacturers, CP/M formed a basis for today's MS-DOS which has drawn heavily on CP/M's format, and this is noticeable in the similarity of "feel" between the two systems. This brings me to the first advantage of familiarising yourself with CP/M . . .

A BACKGROUNDING FOR MS-DOS

Due to the similarities between CP/M and MS-DOS, I have found that my experience with the former has aided me greatly in my familiarisation with the latter. Many commands are similar, both utilise true ASCII text, and there are a lot of MS-DOS programs that are direct ports of earlier CP/M versions that are familiar both in concept and the commands used.

I have found that, by utilising suitable versions of software on both my 128 and my MS-DOS machine, I have been able to lessen the learning curve that would otherwise have been necessary when familiarising myself with a new machine.

SOFTWARE

Because so very many computer manufacturers implemented CP/M as their operating system in the early eighties, there is a great deal of software available for it. Not all will work "as is" on our machine due to the many hardware incompatibilities between brands, but you will find that much of it can be "installed" on the 128 without a huge amount of trouble once one becomes familiar with this mode.

Nowadays, most CP/M software can be picked up relatively cheaply, or at no cost at all. Actually, the biggest "hassle" I have had acquiring CP/M software has been due to disk format incompatibilities, that is, disk types that my 1571 refused to recognise.

This has been alleviated over recent years with the gaining of several programs which allow me access to still more types of disk format. In any case, programs like WordStar (wordprocessor) and its associate programs (ReportStar, DataStar, etc.), and DBase II, offer the 128 CP/M user a huge amount of power and performance, and really they are not all that difficult to come to terms with.

As well as the availability of a huge amount of first-class software at a low cost, the ability of CP/M to read and write true ASCII (or indeed, IBM compatible WordStar format text files) is a great boon to Commodore 128 owners who need to transfer text files to and from IBM compatible machines. The only problem lays in the incompatibility of disk formats.

You may still need to resort to Big Blue Reader in 128 native mode to transfer files to and from CP/M and MS-DOS compatible disks if you don't have access to some of the excellent utilities, such as FE-IBM, or Newtran1 that can perform the desired operations within CP/M. Alternatively, the use of a null modem or a modem link over

Hello Everybody, welcome to another Bits & Pieces column.

This first program will keep you busy for a while. Lots of lovely data to type in, but it's the only way for those of us who don't program in pure M/L, and the end product makes it all worth while. It will generate a 16 line colour bar at the top of the screen. This can then be enlarged, made stationary or rolling, or moved to any part of the screen while your program is running. Here is the information you may need to "tweak" it to suit your purpose:-

1. The height of the split is the value 49 in line 23, and can be changed when your program is running using POKE 49530,(R * 8 + 49) where R = ROW 0 to 24.

2. The size of the bar is represented by the second 16 in line 27, and can be changed directly using

POKE 49564,[0 to 176]. If you enlarge the bar you have to add colour data to match the extra lines, or you may find that you have gaps in the display.

3. If you want to cycle(roll) the bar, change the 0 in line 16 to 1., OR from your program with

POKE 49475,[0 or 1]:-

COLOUR SPLIT

```
1 PRINT CHR$ (147) : FOR X =
49422 TO 49568 : READ Y : POKE
X, Y : NEXT
2 FOR X = 49664 TO 49679 :
READ Y : POKE X, Y : NEXT
4 SYS 49422 : END
10 DATA 120, 169, 127, 141,
13, 220, 173, 13
11 DATA 220, 169, 27, 141,
017, 208, 169, 0
12 DATA 141, 18, 208, 169, 53,
141, 20, 3
13 DATA 169, 193, 141, 21, 3,
169, 1, 141
14 DATA 25, 208, 141, 26, 208,
88, 96, 169
15 DATA 1, 141, 25, 208, 162,
11, 202, 16
16 DATA 253, 32, 129, 193,
169, 0, 240, 51
17 DATA 173, 160, 193, 73, 1,
141, 160, 193
18 DATA 208, 41, 174, 156,
193, 202, 202, 134
19 DATA 255, 24, 169, 0, 101,
255, 141, 119
20 DATA 193, 169, 194, 105, 0,
141, 120, 193
21 DATA 172, 0, 194, 162, 0,
189, 1, 194
22 DATA 157, 0, 194, 232, 228,
255, 144, 245
23 DATA 140, 255, 255, 169,
49, 141, 18, 208
24 DATA 76, 49, 234, 169, 7,
133, 255, 160
25 DATA 0, 185, 0, 194, 141,
33, 208, 141
26 DATA 33, 208, 152, 037,
255, 240, 5, 162
27 DATA 6, 202, 16, 253, 200,
192, 16, 208
28 DATA 232, 96, 0
29 REM COLOUR TABLE
```

CP/M Corner...... continued from previous page

telephone lines will remedy the problem. In both these cases, CP/M does not really offer much in the way of a terminal program, the fastest transfer rate I've seen being only 300 baud, so it may pay to copy any files to be transferred to a Commodore formatted disk. From there you can utilise your favourite Commodore mode terminal program (Desterm for me!).

There are a couple of excellent utilities that will allow the CP/M user access to a variety of Commodore disk formats. Not having 64Net, I am uncertain as to its suitability for these file transfers. Perhaps Warren (or, even better, Paul Gardner-Stephen) will be able to offer some information?

HARDWARE

Unfortunately, there is simply nothing new on the hardware side of things for CP/M users. I can't recall anything being released for the 128 in recent times that offered CP/M users anything more than absolutely nothing! Work is supposed to have been done to allow owners of the CMD FD series drives to use the full potential of these excellent devices, and apparently, similar work has been done for RAMLink, but nothing seems to have come from either project - a great pity! Hopefully someone will be able to bring these to fruition.

```
30 DATA 1, 2, 3, 4, 5, 6, 7, 8
31 DATA 9, 10, 11, 12, 13, 14,
15, 1
```

Just to round things out and make it easy, if you add this to the end of the colour split, and GOSUB it in your program, it will turn the split off.

COLOUR SPLIT OFF.

```
110 FOR X = 49569 TO 49590 :
READ Y : POKE X, Y : NEXT
120 SYS 49569 : REM GOTO YOUR
NEXT COMMAND HERE
130 DATA 120, 169, 174, 141,
20, 3, 169, 193
140 DATA 141, 21, 3, 88, 96,
169, 1, 141
150 DATA 25, 208, 76, 49, 234,
255
```

If you don't have a utility to assemble an auto/run loader for your program, here is a simply way to do it:-

```
10 POKE 147, 0
20 SYS 57812 " FILENAME ",8,1
30 SYS 62631
```

There is always some way to make things easier on the 64. How about only using RESTORE instead of RUN/STOP RESTORE. Say no more, just start typing:-

```
1-TOUCH RESTORE
1100 PRINT CHR$ (147) ; CHR$
(5);
1110 A = 2024 : FOR X = A TO A
+ 10 : READ Y : POKE X, Y :
NEXT
1120 POKE A + 11, PEEK (770) :
POKE A + 12, PEEK (771)
1130 POKE 56333, 127 : POKE
771, A/256 : POKE 770,
((A/256) - PEEK (771)) * 256
1140 POKE 56333, 129 : PRINT
"ONE-TOUCH RESTORE ENGAGED." :
NEW
1150 DATA 169, 102, 160, 254,
141, 24, 3, 140, 25, 3, 76
```

It's a bit of a problem to explain all of the requirements of sound programming here because it would take page after page. So, how about you check it out in your manual for the basics, and we will add a few F/X sounds in the column. Then you can experiment with them. Here is the first:-

HELICOPTER F/X

```
920 D = 80 : REM DURATION OF
SOUND
930 S = 54272 : FOR J = 0 TO
23 : POKE S + J, 0 : NEXT :
POKE S + 24, 15 : POKE S + 6,
240
940 POKE S + 4, 17 : FOR J = 1
TO D : FOR K = 9 TO 0 STEP -1
: POKE S + 1, K : NEXT K :
NEXT J
```

Perhaps you have assembled a small piece of machine code with an assembler, and you would like to change it into BASIC data statements to use it in your own basic program. Now, to poke it into memory with a FOR/NEXT loop, you would have to count the data manually for your start/finish addresses. Horror and headaches?. Not with your 64, it's not! Because we can use what is known as a DELIMITER (-1), which saves us the trouble of counting the data, your computer will do it for you. More typing!:-

DELIMITER

Example:

```
5 RESTORE : M = 12 * 4096 :
REM $C000/49152
6 READ X : IF X < > -1 THEN
POKE M, X : M = M + 1 : GOTO 6
10 START OF YOUR BASIC
PROGRAM..........
1000 DATA 32, 207, 255, 157,
0, 193, 232, 202, 13, 246, 96,
-1
```

Don't forget to add -1 to the end of your data.

Save yourself some typing by assigning a much used number to a variable. If you have to POKE three different values into a memory address, say 36874, for example, you would poke 36874, 13 : Poke 36874, 72 : Poke36874, 16. A much easier way is this:-

```
10 A = 36874
20 POKE A, 13 : POKE A, 72 :
POKE A, 16
```

Fit more on a line too.

Like to highlight the first REM statement in your program (ie name of program)?. Easy.

```
0 REM(2 SPACES) WHATEVER
```

In DIRECT MODE - POKE 2055 , 18 (rtn)

Easy to see when you list.

As promised previously, we will program ourselves a HIGH-RES LINE MACHINE.

You can use the same method for storing line information as you would use for storing notes in a sound program - READing a section of DATA. In the next program, the DATA has been written in to produce a design. Think of the program producing an imaginary 'pen'. As with a real pen you will be able to lift it up from the screen, put it back again, or move it up or down. The program also gives you the option to change the colour of the 'ink' with the DATA.

Here is how it works.

All the DATA statements are split into PAIRS. If both the numbers are GREATER than or EQUAL to zero, then the pen is moved in a straight line to the position specified by the pair of numbers. If the pen is down, then a line will appear.

For all other options, the first of the pair of DATA numbers is -1. The second number then tells the computer what to do. If the second number is 1, the pen is moved down the screen. If it is an 0, the pen goes up. If the number is negative, the number that follows the minus sign fixes the variable COL (the ink colour). Finally, if the second value is 2 , the program finishes by going into a endless loop in line 1070 so the display is not spoiled with a READY message. RUN/STOP to clear.

Just type this on to the end of the SUBROUTINES you already have:-

A SPACE SHUTTLE

```
10 GOTO 1000
1000 POKE 53280, 0 : GOSUB 100
1010 COL = 208 : GOSUB 200
1020 PEN = 0 : LX = 0 : LY = 0
1030 READ NX, NY
1040 IF NX > = 0 THEN 1090
```

A History Lesson

Here it is, the first month of 1996, and in my fevered search for something just a little bit different in the way of articles for our premier '96 issue, I thought it might be interesting to look back at the history of Computing and of the Commodore 8-bit Machines, especially in light of the happenings of this past year.

THE TIMES, THEY ARE A'CHANGIN' - A POTTED HISTORY OF COMPUTERS

The history of Commodore is deeply rooted in the history of computers in general, and I would be remiss if I didn't supply the background necessary.

Most of you would realise that the great great grand father of the modern computer is the abacus, a simple frame equipped with beads, disks or counters fitted to a number of wires or grooves representing units of ones, tens, hundreds, etc., etc. Calculations are made by moving the beads along the relevant wire or groove as necessary. This is the most ancient form of mechanical computer, having been invented more than 5000 years ago. It is still widely used in the Far East and in the countries of the former Soviet Union, with a skilled operator able to calculate figures at least as quickly as you or I using a pocket calculator. It is interesting to note that, as recently as 1983, over two million abacus were being produced each year in a country like Japan.

The 1600's saw another device, Napier's Rods (or Napier's Bones) see the light of day. These were invented in 1617, and consisted of a number of square prisms, each inscribed with one digit and the result thereof if multiplied by 2, 3, 4, 5, 6, 7, 8, or 9. Calculations were arrived at by placing the rods displaying the pertinent numbers to be multiplied side-by-side and then adding the results.

Probably the next important step towards achieving a working computer came with Blaise Pascal inventing the first adding machine (1642). This replaced the manual carrying of tens to the next column with a mechanical device which engaged after nine single units had

---

Bits & Pieces continued from previous page

```
1050 IF NY = 1 THEN PEN = 1 :
GOTO 1030
1060 IF NY = 0 THEN PEN = 0 :
GOTO 1030
1070 IF NY = 2 THEN GOTO 2000
1080 COL = -NY: GOTO 1030
1090 IF PEN = 0 THEN LX = NX:
LY = NY: GOTO 1030
1100 GOSUB 600: GOTO 1030
1200 DATA -1, 0, 49, 123, -1,
1, 74, 102, 73, 112, 78, 112,
81, 98, 74, 102, 88, 94, 212,
78
1210 DATA 207, 85, 254, 4,
266, 2, 256, 82, 207, 85, -1,
0, 258, 72, -1, 1
1220 DATA 272, 70, 286, 98,
250, 137, 236, 108, 272, 70
1230 DATA 258, 72, 272, 62,
304, 60, 280, 86, -1, 0, 245,
125, -1, 1
1240 DATA 90, 130, 136, 156,
                    145, 192,
173, 195, 245, 125
1250 DATA -1, 0, 236, 108, -1,
1, 158, 114, -1, 0, 106, 140,
-1, 1, 78, 140, 49, 134, 49,
123
1260 DATA -1, 0, 250, 137, -1,
1, 233, 137
1370 DATA -1, 2
```

HOW TO CHANGE THE SIZE OF THE DISPLAY.

You can alter the line machine program (above) so that it produces a smaller image. Try keying in these lines:-

```
600 NX = NX/2 : NY = NY/2 : GT
= ABS (NX - LX)
1090 IF PEN = 0 THEN LX = NX/2
: LY = NY/2 : GOTO 1030
```

This will reduce the shuttle to half the size. Now, just by experimenting with the data statements, you can draw any shape you wish.

More next issue.

Happy Programming.

Kev

Commodore Network

been calculated. Monsieur Pascal's device received a Royal Charter for its manufacture in 1649.

It took a while for the next big step to be taken. Until 1822, to be exact! It was in this year that the English scientist, Charles Babbage, produced a small working model of his "difference engine". Later, in 1834, he drew up his first plans for, believe it or not, a programmable digital computer, which he termed his "Analytical Engine". It was a development of his earlier work of twelve years previous, and was to be programmed via punched cards, make calculations with the aid of memory storage, print out the results, and operate at what was then considered the remarkable speed of one addition per second.

As an interesting aside, the punched cards which Babbage adopted for use in program input were originally invented in France some 33 years earlier by a French weaver, Joseph Jacquard. They were originally intended for use with a loom invented for the manufacture of elaborately patterned fabrics. The pattern was to be coded into a loop of cards by punching holes in them, allowing needles to pass through at the desired spots and lift the corresponding threads of the warp.

The British government invested the princely sum of £17,000in Babbage's invention, and Babbage himself managed to find an additional £6,000, but his efforts to produce a satisfactory full-size machine were defeated within his lifetime by a lack of techniques for machining the various metal components to the fine tolerances required.

Government support was withdrawn in 1842 when the Astronomer Royal, George Airy, described the project as worthless.

It was not until 1939 that Babbage's dreams finally came to fruition, when work was begun in the United States on a fully automated calculator.

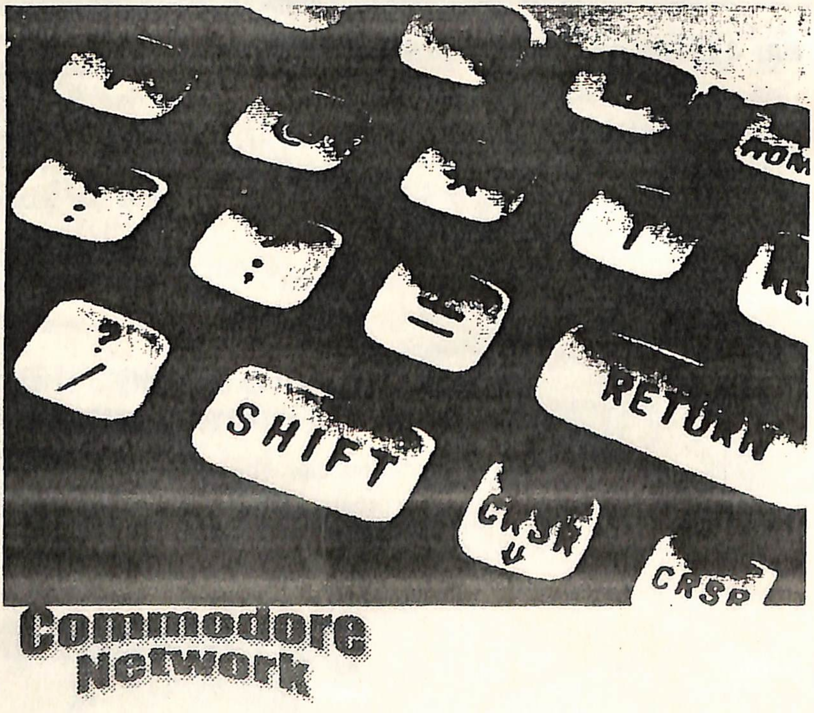
But between times, work on calculators and computers had not stopped. Far from it, but Europe was no longer at the forefront of the new technology, by now, the United States had taken over.

In 1890, U.S. statistician Herman Hollerith invented a tabulating machine for use in the 1890 census. He based this on an idea put forward earlier by an unknown individual in an effort to help the railways trap train robbers, who often posed as passengers. The original idea was quite simple. Train tickets were to be labelled with varying descriptive characteristics and the clerk selling the ticket was to punch a hole next to each pertinent piece of data. Thus a reasonably accurate description of each passenger could be tabulated and, after a robbery, the ticket records for all missing passengers could be referenced, and descriptions issued. This was never widely used, but Hollerith was quick to realise the potential and set to inventing his "Tabulating Machine" in which the punched cards were "read" by feelers which could detect a hole and generate a corresponding electrical signal. By utilising this method, the 1890 census took six weeks to complete, despite a population growth of some ten million people since the previous census (1880), which took some fourteen weeks to complete.

Six years later Hollerith went on to establish the Tabulating Machine Company, which was to become, some 28 years later, the basis for today's IBM.

By 1930, and Vannevar Bush, an American scientist, produces a large electro-mechanical calculator. This is the first large analogue computer, and is followed in 1942 by the creation of the first electronic digital calculator at Iowa State University by Professor John Atanasoff and Clifford Berry.

ENIAC (Electronic Numerical Integrator and Calculator), the first and probably the most famous individual electronic computer, was built at the University of Pennsylvania in 1945. Used by the U.S. Army to calculate firing angles for new artillery weapons, it accounted for range, shell type, and



weather conditions. This beast consisted of some 18,000 valves, occupied several rooms, consumed enough power to drive a train, and performed up to 5,000 calculations a second. Compare that to your C64!

By the end of '46, John von Neumann had built a computer at the Institute of Advanced Study, Princeton, which represented two important steps forward. The ability to store information, and the use of Binary numbers.

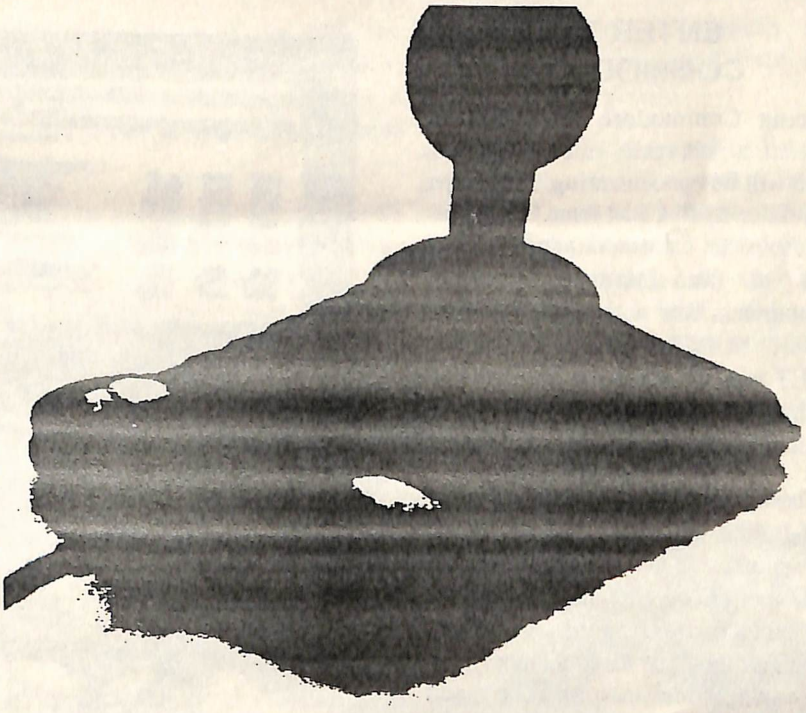
The first "mass produced" computer system became available in 1950 when an American company, Eckert and Mauchly Computer Company began production in Philadelphia, U.S.A.

Called the Univac 1, the name was an acronym for "Universal Automatic Computer". IBM followed some three years later with its 701 model. Both relied on valves. It wasn't until 1960 that transistors became available, and, as with everything electronic, revolutionary the computer industry.

In these times, computers were rare, extremely expensive, and computing time invaluable. Programs were rarely written directly into the computer, but were created on a different machine which punched holes into cards, similar to Babbage's vision.

Once a set of cards had been suitably punched, you took them all over to your computer for processing. If you were lucky, and you had exclusive use of the machine, you might get them processed straight away, but this was rare. More than likely you would have to wait several days before computer time was free, and you could get it to work on your data. It may well take weeks to debug a routine because of the time wasted every time you had to debug and retest a program. These systems were termed "Batch Processing" systems, and it soon became apparent that a better way of utilising computer time had to be found.

Time-sharing was the next step. This involved the installation of multiple terminals connected to a single computer. Terminals would consist of a single keyboard and a monitor or printer. I can hear many of you saying "but what has that to do with Commodore 8-bit computers?



Well, the answer is simple, BASIC!

Until now, there was no need for a simple programming language. Computer time was far too valuable to waste on beginners trying to program routines and continually (as beginners are apt to do) making mistakes and needing to regularly update and correct their work.

Programming, up until now, had been the domain of highly-trained engineers, and no place for beginners. Terminals changed all that! People could sit down and work on their programs, completing them in a matter of hours rather than days.

BASIC (Beginner's All-purpose Symbolic Instruction Code) was the first popular interactive programming language, and remains one of the most popular today in all of its permutations. In case you hadn't noticed, our beloved BASIC was originally written by Bill Gates of Microsoft fame, and one Paul Allen.

BASIC also has the dubious honour of being the first piece of widely pirated computer software on any computer platform, having originally been written for use on the Altair as a purchasable enhancement.

In 1965, the silicon chip was first introduced into the U.S., and this was followed in 1971 by the introduction of the pocket calculator and the American Intel

Corporation's introduction of the first microprocessor - an entire computer processor on a single silicon chip.

This development finally made the production and sale of cheap (relatively speaking) and reliable home computers a commercial possibility, and opened the doors for Commodore!

By the late 1970's, Commodore had released its first PET computer (1977) which proved so popular that the first two years production saw limitations on the numbers supplied. BASIC was already the installed language for the Commodores (BASIC 2.0).

ENTER THE COMMODORE!

Being Commodore fans, this is where it gets really interesting, and we will be concentrating on the ups and downs of CBM from here on in this article. Commodore's first foray in to manufacturing personal computers was with the PET 2001, 4001, SUPER PET,etc. The name PET was an acronym for Personal Electronic Transistor (sounds like a small personal radio to me!).

These first efforts had a nasty habit of failing quickly. Understandable, I suppose, given Commodore's inexperience in the computer manufacturing game. Equipped with either 4k or 8k of memory, and a monochrome monitor (black and white), cassette drive (disk drives became available on later models), Microsoft BASIC, and a keyboard built in, the PET's were based on MOS Technologies versatile 8-bit 6502 microprocessor.

Later models of the PET where in colour, housed in a plastic case, and offered the option of BASIC 3.5, and 800K disk drives. The infamous "save-with-replace bug" can be traced back to these old PETs.

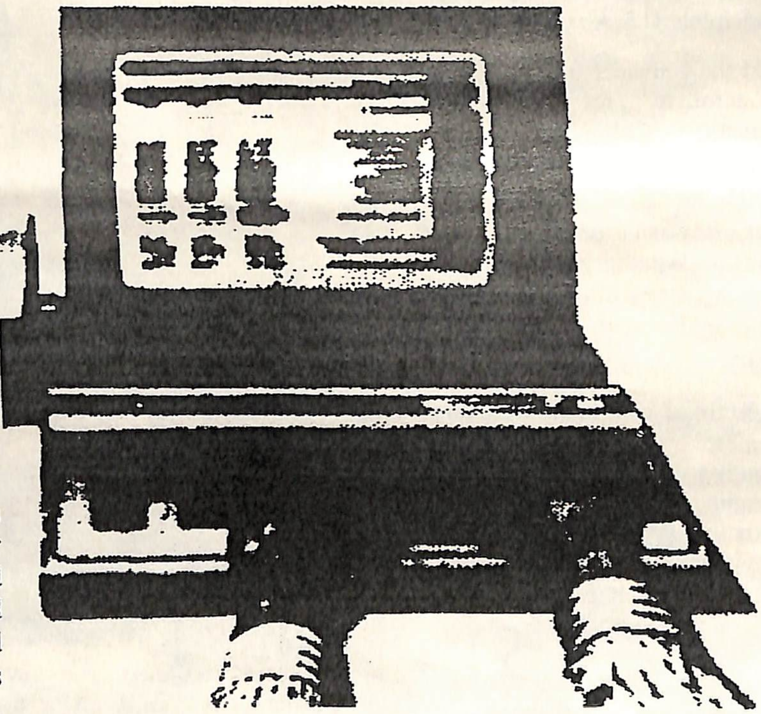
Commodore's next effort was with the CBM 4032 and 8032 around 1980. These were a distinct improvement on the PET series, being equipped with far more memory, fast (relatively speaking) disk storage, and more versatile software. These were applications oriented machines, suitable for business usage.

By early 1981 Commodore was ready to release the VIC-20. Created in response to the perceived threat of Japanese companies possibly entering the U.S. home computer market, the Vic-20 came equipped with a standard 3.5k of RAM (upgradeable through memory expansion to 32k), and was the worlds first colour computer to sell for under U.S.$300. With eight colours, character animation, graphics (doing a better job of this than its replacement of latter years, the C64), a tone-generator, a 21-column screen, and the original VIC chip, its main selling point was its low price.

Competition generally, was much dearer, although these sported more memory as standard.

The Vic was good at playing games, and was a good computer to learn programming on. Its keyboard was easy to familiarise yourself with, and optional peripherals included the 1540 disk drive, and a printer. It even had a modem (Vic-modem...300-baud) available!

Despite this, by the spring of '84 the Vic had seen its best days, and was discontinued by Commodore. In 1982, Commodore first released its most famous computer, the Commodore 64!



Equipped with a massive 64k of RAM, sprite graphics, stereo sound, and probably more raw computing power than any other machine of its time for anywhere near its price (U.S.$600), the Commodore 64 offered a host of options, including an intelligent disk drive (the 1541), the 1702colour monitor, the MPS 801 printer, the VicModem, etc., etc.

The Commodore 64 was (and is) a GREAT machine. Its strength, despite those like myself who prefer to use it for more mundane purposes such as word processing, etc., was its ability to play games, and games the likes of which had never been seen on a home computer before! This ability SOLD the computer, but its ability to do much more, like word processing, telecommunications, or almost anything else the user put his mind to, has kept it a favorite in the hearts of the many C64 enthusiasts worldwide.

Selling over 17 million units globally within the decade or so of its production life, the C64 certainly deserves a place in history.

By 1984, Commodore had released its next efforts, the Plus/4 and Commodore 16. The Plus/4 was designed as a productivity machine, having a spreadsheet, word processor, etc., built in to its ROM. Sporting 128 colours, and an improved sound generator (over the Vic), it had the option of using the 481 disk drive - a non-64 compatible unit, the 141 colour monitor and a printer.

The Plus/4 incorporated a "new" chip, the 7501 (largely compatible with the 6502/6510 series).

The Commodore 16 was essentially a stripped down version of the Plus/4, equipped with 16K RAM (expandable to 64K), a monitor, windowing capabilities, and BASIC 3.5. It was designed to take over where the Vic-20 left off! In 1985, Commodore released the best (in my humble opinion, anyway!) 8-bit computer ever to see the light of day - the Commodore 128.

This was to be the upgrade computer for the ever-popular C64. It came equipped with a standard 128k of RAM (supposedly upgradeable to 640k), an 80-column display mode, sprite graphics, the SID-chip, BASIC 2.0 AND BASIC 7.0 installed, 64-mode (so that Commodore 64 users could still use their 64 software library). A new disk drive design, the 1571, was also produced to accompany it. This had the ability to emulate the oh-so-popular 1541 (to facilitate compatibility with disk-based C64 software), and was a real marvel in drive technology. Operating in its "native" mode, the 1571 doubled data storage capacity over the '41 when used on the 128 in its native mode.

A second version of the 128, the 128D, differed in that it had a built-in disk drive (a stripped-down model of the 1571) and a detachable keyboard.

The 128 was discontinued in 1989 instead of the C64 (which it was supposed to replace!) simply because production costs exceeded expectations.

This brings us to the Amiga line of computers, and the end of the Commodore 8-bit saga. I really know very little about these computers, so this also means the end of this article as such. However, let's have a brief look at . . .

WHAT MIGHT HAVE BEEN!

At various stages during its latter years, Commodore toyed with several ideas and permutations of its tried-and-true technologies.

Amongst these were the following:

Commodore 364 - This was an upgraded version of the 264 and supposedly included built-in speech capabilities.

Commodore 116 - Essentially a Commodore 16 equipped with a different style-keyboard.

Commodore 65 - A souped-up 8-bit computer that was Commodore 64-compatible with a 64-mode, up to 1MB of RAM, enhanced sound and graphics capabilities, built-in 3.5" disk drive, and BASIC 10.0. - hoping to arrange an article on one

Commodore Network

Paul Henson

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Missing Software!

One of the most common "gripes" I have heard from 128 users is that there is no new software for the "native" mode. I have great pleasure in uttering a pronounced, and very loud "BULL!"

For this and further offerings to "Page 128", I'm going to put together a compilation of mini-reviews of some of the newest software available, as well as a few "Golden Oldies", for the machine.

Where possible, information on sources and the product cost, if known, will be supplied. I haven't been able to verify some of these prices, and in many cases some additional delivery charges will be applicable, so it will pay to contact the people concerned in each case to ascertain the correct costs to you before sending any money. If possible, a telephone number has also been supplied.

For this month we are going to have a brief look at "Fontigus 128" and "Karma".Fontigus 128

Our first mini-review will be of Fontigus 128. Despite a personal loathing the name, this is a powerful and versatile 80-column character editor designed to make designing fonts an easy and enjoyable task, something it achieves admirably. I found it incredibly easy to use, with extensive background information on the varying character set types (uppercase/graphics, lowercase) and usage supplied along with a full description of each program function and the commands implemented in an excellent spiral-bound 14 page manual.

I must admit that I liked the amount of information Fontigus makes available to the user about each character as it becomes highlighted by the cursor. Information such as the value of each line of data in a given character, its PETASCII value, its screen-code value, and whether it is upper or lower case. It is a pity that one could not take the data statements for each character and save them to disk as a separate file instead of notating and entering them manually. If this could have been implemented it would have made life just that much easier for the BASIC programmer.

The characters themselves can be edited and manipulated in a number of ways, including inverting, flipping, mirroring, rotating, and shifting entire characters right or left, up or down a single line. Something which I've never seen implemented before in other character editors is the ability to choose the format in which you save your character set. Options will include a choice of saving in either the "short" (without null zero padding) or "long" (with null zero padding) forms.

There are a number of things I don't like about Fontigus, however (other than the name!). I don't like the fact that it is necessary to type in a filename in order to load a program from disk. Why couldn't a simple highlight bar be implemented on the otherwise quite serviceable directory viewer, and the highlighted file be loaded directly upon the pressing of <RETURN> or something similar. Call me lazy, but I think that an oversight like this lets the entire program down.

I also found that access to DOS commands was somewhat restricted since only single commands can be issued at a time, and you are perpetually being asked for a drive number on which to perform the stipulated function.

These small faults aside, Fontigus has my heartiest of recommendations.

SOURCE:PHD Software
P.O.Box 23
Moville
Iowa
U.S.A.51039-0023
no phone number available at press
COST:U.S.$29.95

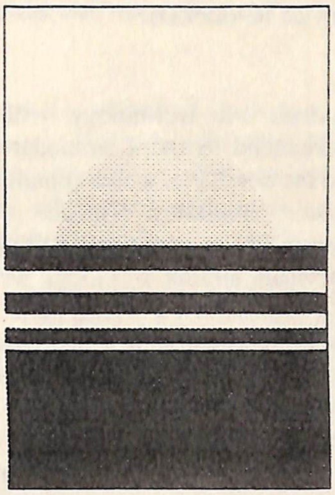
KARMA

Sorry fellows, this has nothing to do with quieting the missus down after you opted to work on your 128 instead of going out to dinner on your wedding anniversary! In fact the only similarity that you may find between the above situation and this powerful Assembler program could well be in the richness of the labels being used.

Expanding Horizons

The Super 64 CPU - A look at the future!

.....with extensive help from Charles Christianson and CMD's press release.



Although enhanced speed CPU's are nothing new to the Commodore community, they are often a source of fascination and wonderment. The news that CMD, Commodore 8-bit computerdom's most stalwart commercial supporter, is about to embark on supplying an enhanced CPU at an affordable price, is great news for everyone. In this article, we have taken the latest information we have to hand, and presented it to you.

Naturally enough, as with anything in the developmental stages, things may change, and we will endeavour to keep you all up to date if and when things happen.

Here's some of the latest specifications on the Super CPU.

The Super 64 CPU is an accelerator module that plugs into the C64/128 cartridge port. At its heart is the W65C816S microprocessor running at either 10 or 20 Mhz. This replaces the 65C02S processor originally mooted as the heart of this piece of technology. Also included will be an additional 128K (originally to be only 64k) of high-speed Static RAM (the same type of high-speed cache memory found in 486/Pentium systems), which should circumvent any speed bottleneck which may occur when BASIC or Kernal routines are called. 64K of ROM, and a Complex Programmable Logic

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Page 128 Continued from previous page

Karma is another offering by PH.D. software, and is a quick, multi-featured macro Assembler, similar in many ways to Buddy. Allowing extensive use of labels (symbols), and giving the programmer the option of saving his work in either sequential or program format, Karma will work quite happily utilising a file created with a text editor (like Zed128) for input, or BASIC itself.

Possibly its greatest strength lays in the generous number of label formats and types. Its selection of temporary symbols, utilised in the programming of short branches and loops is also impressive.

I did find that Karma surprisingly did not support the AND and OR logical operators, not that they are of any great importance. There are also numerous peculiarities within Karma, not all bad, of course! These become, at worst, avoidable, and, at best, "features" of the program as one becomes more familiar with the Assembler.Karma comes with a disassembler, called UNKARMA. I would consider this of little use.

Also supplied is an excellent spiral-bound manual which offers almost any information on the program one could wish for.

It does fall short in one area in my opinion, and that is in its lack of a tutorial.

There is, in short, no way that I couldn't recommend this to anyone looking for a 128 mode Assembly package. If, however, you have Buddy (my Assembler of preference), I don't consider the differences worth the purchase price.

SOURCE:PHD Software
P.O.Box 23
Moville
Iowa
U.S.A.51039-0023
no phone number available at press
COST:U.S.$59.95 plus $15
shipping within the USA

Device IC (CPLD).

Sixteen bit technology will be introduced to the Commodore 64 via the new CPU, which contains an 8-bit emulation mode. The SuperCPU is contained within an enclosure approx. 6" (15cm) wide x 3" (7.5cm) tall x 2" (5cm) deep. The enclosure has an opening for the Cartridge-Port Pass Through connector at the rear, exactly in line with the computer's Cartridge Port.

The unit is the same width as a RAMLink, and when plugged in between the computer and a RAMLink, it aligns almost exactly with the RAMLink's casing. The main circuit board in the SuperCPU mounts vertically, so as to keep the depth of the unit to a minimum. This prevents devices plugged into the pass-through port on the CPU from extending too far back from the computer.

Three easy-to-use toggle switches line the upper front edge of the unit: A Unit Enable/Disable switch; a JiffyDOS Enable/Disable switch; and a speed selection switch.

Installing the SuperCPU is simple: just plug it into the Cartridge port. No wiring or jumpers need to be installed inside of the computer.Operation requires no special knowledge. The user can perform all the normal computer tasks in exactly the same manner as with a stock system, and still gain the benefit of the greatly accelerated speed. The toggle switches on the unit are clearly labeled, easily accessible, and can be used without having to refer to a manual in order to determine their function.

As with CMD's RAMLink, the SuperCPU has been designed to work out-of-the-box with any C64 or 128 computer - no manual "tuning" adjustment is required.

The SuperCPU operates with C64 and 64 "C" computers as well as the C-128/128-D in 64 mode. The 65C816 supports all legal 6502/6510/8500/8502 opcodes and will therefore provide a very high level of compatibility with all existing software, including GEOS.

The C-64 memory map is emulated exactly by the PLD, and the proprietary write-through logic in this chip ensures full compatibility with all VIC graphic modes and memory mapping.

To help achieve its high level of performance, all operating system routines are downloaded into 64K of the high-speed Static RAM upon power-up, eliminating the bottleneck caused by ROM-based operating system code (on PC's, this technique is called ROM-BIOS shadowing). 64K of high-speed SRAM remains free for programs.

In addition, buffered write-through circuitry (similar to PC cache-controllers) keeps the SuperCPU from having to slow down when writing data back into the C64's RAM.

Additional Features:JiffyDOS: The JiffyDOS Kernal ROM for the computer is built into the SuperCPU, providing DOS-Wedge commands and enabling high-speed serial transfer rates to and from JiffyDOS-equipped disk drives. A JiffyDOS disable switch is included so that the SuperCPU can load programs which are not compatible with JiffyDOS. This switch can be used to enable or disable JiffyDOS while the CPU is running, and does not affect the operating speed.

Pass Through Port: The SuperCPU includes a Cartridge Port Pass-Thru connector which will enable the full use of most plug-in hardware devices such as Commodore REU's, RAMLink, Swiftlink, SID Cartridge, GEORAM, as well as some software cartridges. These devices will work with the CPU running at 10 or20 Mhz and will not require a slowdown to 1MHz.

REU compatibility: The CPLD chip in the Super CPU includes special DMA transfer logic to provide 100% compatibility with all types of data transfers to and from Commodore REU's.

The SuperCPU does not have to be slowed down to 1MHz in order to initiate a DMA transfer to/from the REU.RAMLink compatibility: The Super CPU is 100% compatible with RAMLink, and contains its own version of RLDOS, which will run from the SuperCPU's high-speed Static RAM. The faster RLDOS, along with the efficiency of new 65C816 opcodes will enable the SuperCPU to transfer data to and from all ofthe memory on RAMLink's RAMCard at speeds which rival the DMA transfer rate of Commodore REU's. Transfer rates to and from CMD HD-Series hard drives connected to RAMLink's parallel port will also be significantly faster.

GEOS: Special features include the necessary Configure and/or driver software to optimize GEOS for operation with the Super CPU. In addition, an intelligent write-thru hardware circuit designed especially for GEOS effectively eliminates a major performance bottleneck associated with earlier accelerator designs such as the Turbomaster and Flash-8. This design feature, coupled with the 10 or 20MHz clock speed of the 65C816 will boost the performance of GEOS far beyond anything currently possible or imaginable.

Expansion Capability: The SuperCPU includes a connector (called the "Rocket Socket") which will enable the user to plug in a CMD-supplied RAM Expansion card. This card will have on-board SIMM sockets and can contain from 1 to 16 Megabytes of Dynamic RAM (DRAM). The RAM on this card can be used as either data or program storage. In addition, some or all of this RAM can be configured for use as an ultra-high-speed RAM disk drive.Speed Selection: The speed selection switch provides three options: 1) 1MHz mode for compatibility with programs (such as some games) that may operate too quickly in the turbo mode; 2) a "soft" Turbo mode which operates at 10/20 Mhz and provides programs with a software speed selection register for switching to a slower speed when necessary; and 3) a "forced" Turbo mode which keeps the CPU in 10/20MHz mode regardless of the setting of the software register. This mode is useful for providing compatibility with existing programs that unintentionally alter the software register. *Note: The SuperCPU performs disk access functions properly in all three speed modes.The user can change speed modes by toggling the speed selection switch while the SuperCPU is operating.*

Development Support: CMD will make a developers package available to programmers interested in using the new capabilities of the SuperCPU. This package will include an assembler which supports all 65C816 opcodes and addressing modes as well as pertinent technical specifications and guidelines. This package will enable developers to produce programs which take advantage of the 65C816's enhanced instruction set, 16MB addressing capability and additional RAM available on the SuperCPU's optional RAMExpansion Card.

Hmmm! Sounds good, doesn't it! We will be attempting to obtain a superCPU as soon as possible for a real "hands-on" review and a possible article comparing the three fast CPU's, TurboMaster, Fast-8, and the SuperCPU in a head-to-head adjudication. By the way, if you are interested, CMD are taking deposits against the first production run. Their address is:

Creative Micro Designs
P.O. Box 646
East Longmeadow
Massachusetts
U.S.A.01028

or you can phone 413-525-0023 or fax 413-525-0147 from within the U.S. Calling from Australia, add 0011-1 before the above phone/fax numbers.

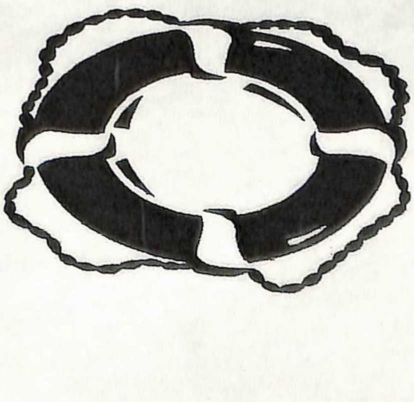
The required deposit is U.S.$50.00 or more, and assures you of receipt of a unit from the first production run in February. The deposit is fully refundable prior to shipment, and is deducted from the final unit price (which is GUARANTEED not to exceed the prices quoted below). Any balance due will be charged to your credit card upon shipment.

If a deposit is presented via cheque or money order, you will need to state how you wish to forward the balance when due, and supply a contact phone number.

At present, the projected costs per unit are U.S.$149.00 for the 10 Mhz version, and U.S.$199.00 for the 20 Mhz beauty! Note that CMD will require you to cover delivery costs in addition to the price of the chosen unit.

HOPE FOR 128 USERS!

CMD are willing to put the work in to producing a version of the SuperCPU for the 128. At present, it is envisaged that such a version will be fully operational in both 64 and 128 mode (CP/M support is apparently unlikely). However, Creative Micro Designs are not too sure just how much support they will get if they decide to release such a product, and have requested that any 128 user who is even slightly interested in such a device drop them a line. It doesn't matter in what form, a fax, a letter, E-mail, a postcard, or whatever, they just want to know if we are out here. If they get a large enough response, we'll get a 128 SuperCPU. If not,well, it's back to 64 mode!



Commodore Network Merchandising

44 Balfour Street, Nailsworth, SA 5083

THE ULTIMATE CP/M COLLECTION

Encouraged by the acceptance of our "CP/M Corner" column, and realising that one of the major problems faced by 128 users who choose to delve into the depths of CP/M is knowing where and how to acquire software, we have put together this massive collection of material covering some 30 X 1541 disk sides, or 8 X 1581 disks. and we've made it available for only $40.00

ALIVE! CLIPART COLLECTION #1

A collection of Print Shop style images compiled from various sources, and presented on 111 Fun Graphics Machine clip art screens. Each screen holds nine images. You will need FUN GRAPHICS MACHINE to utilise these. Comes with a printout of each graphic presented in a binder and at a total cost of only $22.50

THE GEOZ COLLECTION

A huge collection of GEOS shareware and PD items put together over the years by Artie Stevens at GeoZ BBS, and added to by myself and others. Includes more than twenty disk sides of GEOS applications, three disk sides of desk accessories, one of Auto execs and input drivers, three of fonts, and thirteen of art. FORTY disk sides for only $60.00

THE PROGRAMMER'S CROSS REFERENCE GUIDE

The definitive reference work for the programmer who wishes to translate programs between the following platforms - C64, C128, and Plus 4. Available as a print out and presented in a three ring binder, or as a sequential file on disk for you to print out at your leisure.

Binder: $15.00
Disk: $7.50

THE 1581 MASTERS COLLECTION

A collection of 1581 utilities and files, supplied on a 1581 disk. Ideal for owners of this drive or the new CMD FD series drives looking for utilities to help them get the most out of their equipment.

$5 to subscribers $7.50 non-subscribers

THE 1571 MASTERS COLLECTION

As above, but for use with the 1571 drives. Includes programs to help you utilise your drive's ability to handle MS-DOS disks.

$5 to subscribers $7.50 non-subscribers

SAMMANTHA'S GRAPHICS GOES GEOS

Yes, the popular Sammantha's Graphics in GEOS format, a must for those wishing to add a touch of Australiana to their GEOS documents.

$5

GEOS BORDERS

by Norman B Gough

A selection of borders fro use with GEOS. Two double sided disks for an unbelievable price of just $7.50 the set.

CN GEOPAK #1

A selection of GEOS items fresh from Q-Link in the States. This double sided disk contains FULL documentation for most files. Disk contents include: Poster Print, Change BSW, various Fonts, Printer Drivers, and graphics, Unpublish etc.. A must for any GEOS collection.

$5

CN GEOPAK #2

The long awaited second disk in our GeoPak selection. Full documentation is included. Two disk sides containing, amongst others: Mah Jong, DB Getfile, Fontloader, etc..

$5

CN GEOPAK 128

A double sided collection of GEOS PD exclusively for the 128

$5

ADVENTURE DISK #1

The first of our adventure collections.

$5

ADVENTURE DISK #2

The follow up to the successful Adventure Disk #1 for the many adventurers out there

$5

INTERCHANGE 64 and INTERCHANGE 128

Two disks devoted to specialised programs to help the translation of documents or graphics from other computer systems to the C64 and the C128 respectively.

Sold separately at $5 per disk for subscribers, $7.50 non-subscribers.

DEMO GRAPHICS TOOL DISK

A collection of tools for the budding (and experienced) demo artist.

$5

DESOTO UTILITIES

An excellent multi-drive operating system for the C64. Handles 1541, 1571, 1581, CMD HD, and RAMLINK in any combination - EXCELLENT!

$5

GRAFIX GALORE

Tom Stoehre

Subscribers to LoadStar will be familiar with Tom's Work.

This collection is priced at $10.95 and comes recommended.

SAMMANTHA'S GRAPHICS

By Sammantha Hayhoe

Looking to add a touch of Australiana to your printed output? Here is a collection of true blue graphics for PrintShop users.

$5

SAMMANTHA'S GRAPHICS II

By Sammantha Hayhoe

52 new true blue Oz graphics and 67 brand new borders!

VIDEO SHOP

A multi featured graphics manipulation program capable of working with Print Shop, PrintMaster, Doodle, Koala and standard bit-map graphics. Comes complete with a disk of graphics and a disk of fonts and a detailed manual.

$12.50

MOUSE MATS - $4.95 each

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